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GENERAL INDEX.

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ORIGINAL ARTICLES.

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

THE NERVOUS SYSTEM IN SYPHILIS.*

By CLARENCE PIERSON, M.D., and EDW. M. LEVY, M.D.

In proportion to our medical knowledge of syphilis are the neurologist and psychiatrist called upon to assist in the consultation of this numerous class of afflicted humanity and the proper treatment of the same. Probably in the past decade or two greater laboratory strides in syphilis, its understanding and treatment, have been made than in any other disease. We are just now beginning to have a correct comprehension of this organism and its labyrinth of infections.

The earliest mention of neurosyphilis in literature is made by Leoncino in 1497, who described a paralysis as the result of syphilitic infection. During the sixteenth century many references were made showing that there was some appreciation of the relation of certain diseases of the nervous system to syphilis. Toward the end of the seventeenth century, syphilitic nervous diseases were apparently fairly well understood. In 1672 Willis gave the first description by which we could recognize gen-

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eral paresis. During the eighteenth century, many additional conditions were described. Progress along this line received quite a set-back by Hunter's declaration in 1787 to the effect that he had never observed syphilitic disease of the brain. The nineteenth century added many additional pictures leading up to the discovery of the organism in 1905.

How soon after the initial infection does syphilis attack the nervous system is still quite a moot question. It was formerly thought that the nervous system was affected in from two to twelve years. Evidence is gradually being accumulated to show that syphilis attacks the nervous system far more frequently and much earlier than was formerly believed. Improved methods of diagnosis, especially examination of spinal fluid, has made this possible. The Wasserman test, protein estimation, cell count, and the colloidal gold test has put the diagnosis on a definite basis instead of upon exclusive clinical signs, and have been the means whereby its earlier recognition has been made possible.

The clinical aspect however, is too outstanding classically to be underestimated, and has a bearing in certain instances equal, or significant in importance to any laboratory finding as yet at our command.

Cornaz[1] investigated the cerebro spinal fluid of 354 cases of syphilis in all stages. He found a positive Wasserman of the spinal fluid with lymphocytosis in a case of primary syphilis before the appearance of any secondary manifestations whatever. Also, in 76 cases of primary syphilis, with hard chancre and without secondary manifestations, the lymphocytes in the spinal fluid were increased in 35% of the cases.

Wile and Halsey[2] in a series of 221 cases, found that the spinal fluid showed some deviation from normal in 22%. The spinal fluid Wasserman became positive in some cases before it became positive in the blood.

Similarly, Nicalou[3] examined the cerebro spinal fluid of 51 cases of primary syphilis prior to appearance of secondary manifestations. In 18 cases there was definite lymphocytosis of the spinal fluid. This lymphocytosis usually appeared in the third week. He also noted pupillary anomalies in 16 cases.

Fields, Pornell, and Maitland[4] examined 624 luetic men, the majority in early stages and none of whom showed any obvious

sign of nervous system involvement, 18% showed undoubted abnormalties of central nervous system. If the doubtful cases were also included, the percentage would be far greater. In the series, of all men who had been affected for more than six months, 35% showed disease of the central nervous system. It must be borne in mind that this series included many cases seen in the first week of the disease. The abnormalties appeared in two cases before serum Wasserman became positive.

Wile and Marshall,[5] in a study of spinal fluid in 1869 cases of syphilis in all stages, came to the conclusion that syphilis involves the nervous system very early and even seriously, without symptoms.

The large number of cases that have been studied along this line, all show corresponding findings, namely that the cerebro spinal fluid in cases of syphilis show abnormalities in a large percentage of cases and that these changes occur early, frequently before appearance of any secondaries, some claim **always** before appearance of any secondaries. From 25 to 35 per cent. of all people affected by syphilis have involvement of the central nervous system at one time or another. These facts are undisputed, but their interpretation has led to considerable controversy.

Ravaut[6] contends that these early changes are transitory and of no great importance. Wile and Halsey[2] believe that these early changes are without great significance. On the other hand, Stokes[7] believes that early lymphocytosis of spinal fluid points to involvement of the nervous system. Also Wile and Marshall[5] concluded that if the nervous system is not involved early, it is not often involved later. Fordyce[8] says: "The activity of a syphilitic process in the central nervous system is indicated much earlier, more accurately, and often only by cytologic changes in the spinal fluid."

Our belief in regard to this point is that the changes in the spinal fluid in cases of early syphilis point to definite involvement of the nervous system and must be regarded as such and treatment of such early cases should not be deemed sufficient as long as spinal fluid appears abnormal. At this point it is worthy of note that Nicalou[3] stated that in a series of 18 cases of lymphocytosis in primary syphilis, in only one case did treatment cause lymphocytosis to disappear, in only three cases was

lymphocytosis affected by general treatment, although the treatment was sufficient to eradicate all secondary manifestations.

This is a very noteworthy observation and tends to confirm the view stated above.

In congenital syphilis, examination of the spinal fluid confirms the view already taken that definite abnormalities of cerebro-spinal fluid are demonstrated in cases in which evidence of central involvement was not previously suspected. In congenital syphilis some seem to think that a form of tolerance has been established, both on the part of the organism and on the part of the nervous system.

Jeans,[9] in examining 214 cases of congenital syphilis, using lumbar puncture and clinical examination, concluded that one-third had involvement of the central nervous system.

Kingery[10] examined the spinal fluid in 52 cases of congenital syphilis. 28% showed some abnormality of spinal fluid. In 21%, these spinal fluid changes were marked. It is therefore obvious that neurosyphilis occurs with extreme frequency in congenital syphilis.

Briefly, the manner in which syphilis attacks the nervous system in types, are:

1. Meningeal. 2. Vascular. 3. Parenchymatous. 4. Meningo-vascular. 5. Diffuse (meningo-vascular parenchymatous). These types do not correspond to any clinical pictures, but neurosyphilis usually occurs in combinations of types in which one type predominates. Following the initial infection it is known that the spirochaetes are able to, and do invade every part of the body, including the nervous system. It is believed by some that the spirochaetes enter the central nervous system during the early course of the disease and lie dormant in various parts of the brain, but retain their vitality and become active later on in response to some unknown stimulus. This theory has a large following, but still remains unproven. If true, it is very important from a therapeutic standpoint (since early intensive treatment should then rule out the possibility of later neurosyphilis). Experience has not confirmed this observation. The other and opposing theory is that the spirochaetes may enter nervous systems from without at any time, depending upon whether or not they find a more resistant or less fertile soil.

As regards the clinical forms of neurosyphilis, it is not possible to even mention the more important here. Syphilis of the nervous system is so varied in its manifestations that its possibility as an etiological factor is frequently not considered sufficiently. It gives rise to many dissimilar pictures, which are constantly being added to. In this regard Jelliffe and White[11] aptly say: "The physician with his eye riveted on a clinical picture, be it amytrophic lateral sclerosis, a failing memory, a persistent nervous weakness, an isolated cranial nerve palsy, a progressive muscular atrophy of the arm muscles, or a protracted sciatica, may readily overlook the fact that syphilis is the unique cause for these different syndromes." As one famous observer once stated: "He who knows syphilis, knows medicine."

Now as regards treatment. By way of preface let me say that lumbar puncture is an indispensable aid to the recognition of early or asymptomatic neurosyphilis. No case of syphilis should ever be treated and pronounced arrested unless lumbar puncture has been made at least once. It should be a routine procedure in all cases of syphilis, no matter what the symptoms, and by preference it should be performed as early as possible. Close observance of pupillary signs is perhaps nearly as important in diagnosis of neurosyphilis as lumbar puncture. By this means, neurosyphilis will be recognized much earlier and the chances of securing a cure will be greatly enhanced. It will also tend to prevent development of paresis and tabes, in which the chances of securing benefit by treatment are very doubtful at the best.

As to the method of treatment, each practitioner has his own particular method for treatment of syphilis in general, and also of neurosyphilis. The usual plan of treatment consists of the intravenous administration of salvarsan or neosalvarsan in varying amounts and at varying intervals, supplemented by mercury as inunction or injected intramuscularly, and also by iodides. Up to this point there is no divergence of opinion except as to method. However, some practitioners supplement this method by procedures which have as their object the introduction of medicinal substances usually in serum into direct contact with some part of the nervous system—either brain or spinal cord, usually spinal cord.

There has been considerable controversy as regards the necessity of intraspinal treatment and allied methods and its efficacy when used. It has been shown that arsenic injected intravenously appears in the spinal fluid in about 25 to 40 per cent. of cases, and very probably more. However, in certain cases it appears that the permeability of the meninges are affected. This lack of permeability is increased by the frequently added factors of a vascularitis and perivascularitis. In these cases, it is very probable that intraspinal treatment is necessary.

Intraspinal treatment has many ardent advocates who claim that it is the method of election in all cases of neurosyphilis and claim that results are far more encouraging than by other methods of treatment. Prominent among these are Schaller and Mehrtens, Gennerich, Solomon, Scott and Pearson. However, it must be said that the intraspinal method is not without danger, and numerous fatalities have resulted. In some series, the mortality has averaged from 10 to 15 per cent., and also it is not conclusive that this method of treatment is greatly superior to other methods.

However, to adopt a conservative view, intraspinal treatment should be restricted to obstinate early cases of neurosyphilis in which general treatment has no effect, and also to cases of long standing with organic changes.

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DISCUSSION.

Dr. Frank Dwyer (Jackson, Miss.): There are a few points in Dr. Pierson's paper that ought to be emphasized especially. One is that the spinal fluid findings in some cases are positive before the blood findings. That is contrary to the old idea of neuro-syphilis, which was that neuro-syphilis was a late affair occurring five or ten years later. That ought to give us considerable thought, because it necessarily would call for early lumbar puncture. Some say that this early neuro-syphilis is transitory. However, equally as good men claim it is a permanent thing. Some men claim it is a special type of organism that causes neuro-syphilis, and others claim it is not. There is good evidence to show that it might be a special kind of organism. However, there is only one way to determine neuro-syphilis and that is by lumbar puncture. Any case of syphilis before it is cured must have lumbar puncture. I have been in rather a good position to observe how much of that is done. I recall one case of a man who was treated and the doctor who treated him told him to wait four years and then it would be safe to marry. He waited four and a half years and his wife gave birth to a syphilitic child. Lumbar puncture should have been done there.

As regards the treatment of syphilis it is equally divided between intra-spinal and intra-venous. However, most authorities agree that intensive treatment will completely eradicate it. That seems to be about the consensus of opinion of the most conservative today.

Dr. Edwin Levy (Alexandria): The question of lumbar puncture has been brought out. This is usually done without any bad results, it does not require a great amount of preparation, and it gives more information than any other one thing.

As regards the question of different strains of organism causing neuro-syphilis, there has been a great deal of experimental work done to show that there are very likely different strains. The work done in France, especially by Marie and Levaditi, has shown that paretic blood that will produce syphilis in rabbits has a different incubation period than syphilis produced by spirochetes obtained from a primary lesion. Other evidence accumulated tends to show that it is perhaps a different strain that causes neuro-syphilis.

Dr. M. H. Foster (Alexandria): The treatment of tertiary syphilis remains unsatisfactory, and there is lack of agreement among syphilologists as to the best method to employ. In general they are divided into two schools, headed by Fordyce of New York, and Sachs of St. Louis, respectively. According to the former arsphenamin is given into the vein in the usual manner, then after a wait of one hour about 60 cc. of blood is withdrawn from any vein, and after standing in ice over night the clot is rejected, and the serum (approximately 15 cc.) is carefully centrifuged, and desensitized, then it is given into the spinal canal of the same patient.

Sachs contends, on the other hand, that the patient is quite capable of delivering his own autoarsphenamised serum to the cerebro-spinal system if we but emphasize the demand. He therefore merely does a spinal tap one hour after the intravenous dose, and depends upon osmosis to do the rest through the choroidal plexus.

Immediately after my discharge from the army, it was my privilege to treat a number of patients by Fordyce's method with Dr. Trice on Dr. M. F. Engman's service at the Bernard Skin & Cancer Hospital in St. Louis, and since my return to Alexandria I have used both the Fordyce and the Sachs plan.

While I do not think that lumbar puncture should be made an indiscriminate routine, I do believe that its frequent use in the skillful hands of the discriminating operator is of great benefit both as a diagnostic and as a therapeutic procedure. Where I can establish the

diagnosis, and desire to begin treatment, it is my custom to give the arsphenamin in the vein, then wait about an hour and withdraw all the spinal fluid necessary for a complete laboratory study. By this means we can accomplish both diagnosis and treatment with the same puncture, and because arsphenamin has just been administered we do not run the same risk of initiating the intrathecal phase of the disease by extension from blood to spinal fluid that we would if the tap was not so guarded.

And finally, for the prevention of pain I use three needles. Using 1% novocaine, an infiltration wheal the size of a dime is made with a small hypodermic needle. Then I take a platinum needle of small gauge, which I have made to order, 4 inches long, attach it to the syringe and carry this slowly down to, but not into the spinal canal, injecting novocaine into the tissues as the needle goes forward. This needle is immediately withdrawn and pressure made over the area with the ball of the thumb for a few moments, after which a small spinal needle may be inserted without pain, directly into the spinal canal.

DIARRHEA AND DISTURBANCES OF DIGESTIVE FUNCTIONS.*

By DANIEL N. SILVERMAN, M.D., New Orleans.

While diarrhea is often found as a symptom associated with many diseases of the digestive tract and with some changes in organs without this system, there are certain unusual groups of cases wherein this particular symptom represents much serious disturbance of the normal digestive functions. As is well known and realized the factors necessary to determine proper and complete digestion of food are many and at least complicated in their respective activities. However, I shall attempt to show some of the influencing agents of improper digestion resulting from diseased conditions in organs possessed of digestive properties and producing much distress by frequent evacuations of the bowels. The close relationship and interdependency existing between these organs in question, namely the stomach, pancreas, gall blader and liver, and the intestines has long been recognized and spoken of by various authors but only very recently clinical and experimental evidence has shown how and where many of the agents of digestion and absorption come to play their respective parts. And, today unlike yesterday, because of greater facilities for proper analyses interferences with proper action of these agents require much more study and investigation for a determination of definite and convincing causes. These principles can be more clearly understood when one gets an insight into the diagnostic studies made of individual cases

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of diarrhea associated with deficiencies of digestion. While the true achylic diarrhea so called gastrogenic is considered somewhat unusual by many writers it is not infrequently that one sees the association of gastric anacidity with loose bowels due to other causes. The increased intestinal peristalsis may in each instance be due more or less to some deficiency in the amount of hydrochloric acid secreted, but in numerous instances the achylia like the deficiency in pancreatic secretion and in intestinal digestion has a common cause. Hemmeter stated "that no case of chronic diarrhea should pass without an analysis of the stomach contents." For more complete diagnosis and often of more importance, I would like to add to this dictum that each of such cases should likewise have the benefit of an analysis of the duodenal contents wherever possible. This advice is based upon the original research work on the pancreatic enzymes as they appear in the duodenal contents by Dr. W. Denis and myself. The clinical value of this last procedure as we have found it has not as yet been summarized, but for the present I will state that its place in the chain of evidence appears quite prominent in the studies of each of the cases to follow.

It is needless to call your attention to the very obvious necessity of a simple microscopic study of the feces in every case of the type of diarrhea under discussion. The appearance of excessive amounts of free fats and fatty acid crystals, unchanged striated muscle fibres and even of starch cells is of great import, especially in a comparative way with the activities of digestion in the upper alimentary tract. These findings and the symptom diarrhea have played a prominent role in the large experience of Neve.[1] This author found that frequent bowel movements were present in thirty-eight instances out of one hundred cases of pancreatic disease. He and others have stated that the diarrhea is most frequently present late in the course of the disease, but one should not have the impression that this is always the case. In fact some of my cases have presented this symptom as the first signal of distress, and many years have elapsed before the true and underlying nature of the trouble was recognized, which after ten or twelve years in two instances proved to be reflex actions of pathological gall bladders. Neve found in two of his cases considerable quantities of undigested and partially digested striped muscle fibres in the feces. Ten

cases out of his thirty-eight diarrheas showed fatty stools. The same writer states that he has been unable to find any cases on record of well marked fatty feces occurring in connection with biliary obstruction in which it was possible to prove that pancreatic obstruction did not exist at the same time. I would like to state that we have one such case on record whose findings are somewhat unusual in other respects as well. This woman, who was seen through the courtesy of Dr. C. A. Dorrestein, gave a history of having become jaundiced about four weeks before admission to the Touro Infirmary. Prior to that time she had suffered pain in the region of the gall bladder for about seven months. An interesting feature of her condition for many years resolved itself into a remittent chronic diarrhea of fifteen years duration. Although her bowels would usually move from two to three times daily for that period, there would occasionally be an exacerbation of the diarrhea with ten to twelve stools in twenty-four hours; the character of the movements was watery and very copious without visible blood or mucus. The physical examination of this patient revealed a large and irregular liver very sensitive especially over the usual gall-bladder area, accompanied by a generalized deep jaundice. While it was thought that the common duct was completely obstructed, studies of the duodenal contents showed the presence of a small amount of bile. The examination of the stool gave great quantities of free fat, unchanged muscle fibres and a few starch cells. Suspecting that there must be some changes in the pancreas from these findings alone, the duodenal contents were analyzed for their enzymatic activity and it was found that the three pancreatic ferments were practically absent. From all of our clinical teachings and especially the statement of Neve, it was fairly convincing at least that we were dealing with involvement of the pancreas if not a complete obstruction of its duct. Operation proved the case one of carcinoma of the gall bladder with obstruction of the common duct and secondary involvement of the liver. Because of the extensive mass of adhesions nothing more could be seen, felt or accomplished. After a second attempt at operative procedure for relief of the obstruction, the patient succumbed. Autopsy by Dr. J. A. Lanford confirmed the diagnosis and revealed a gall bladder completely filled with small stones. The pancreatic duct was not obstructed nor was there

any evidence of pancreatic disease either grossly or microscopically. Perhaps in the near future such an incidence of chronic diarrhea caused by functional disturbance of the pancreas and indirectly dependent upon an early gall bladder infection will never be overlooked and the offending organ treated or removed as a prophylaxis to such sequellae as terminated our case.

Referring again to the question of achylia in chronic diarrhea of the types in question, Brown[2] tells us that in his interesting group the pancreas was not responsible for the increased peristalsis because examination of the stool showed trypsin and diastase to be normal. This author has also cured almost immediately the majority of these cases by the administration of hydrochloric acid. In similar instances, I have administered the same therapy with immediate beneficial results also but observation of these cases over many months has taught me that such treatment was often only symptomatic and only temporary in its nature. An illustration of this fact was very strikingly brought out in the case of a middle aged woman who had from eight to ten stools every morning for twelve years. The Schmidt-Strassburger Test Diet which is used in the examination of most of our cases, did not show an excess of undigested food elements in the stools. There was a total absence of gastric free acidity throughout the Rehfus fractional analyses. The proctoscopic examination which is made in every case of diarrhea regardless of cause demonstrated a perfectly normal bowel. Hydrochloric acid immediately checked the loose bowels and the patient gained thirty pounds in the first four months of treatment. In the next three months there was a recurrence of frequent bowel movements although she was taking large doses of hydrochloric acid after each meal. The pancreas came under suspicion and consequently duodenal contents were examined for their digestive activity. This happened to be one of our earlier cases and therefore did not receive the complete analysis given at the present time. Nevertheless, the trypsin was found to be below normal. Because of a bleeding fibroid, this patient was operated. The gall bladder showed some changes and was drained. The pancreas was normal to the palpating hand which does not mean that the parenchyma could not have been diseased to some extent. There are other similar cases which, falling under other groups as well, will be taken up a little later. While

it is true that pathology in the gall bladder is not infrequently associated with pancreatitis and that the extension of infection is very probably along the lymphatics according to Deaver and others, Deaver and Pfeiffer[3] are of the opinion that in a large proportion of inflammatory processes the disease is not communicated from the bile passages to the pancreas. Gall bladder disease is more frequent among women in the ratio of 3 to 2. In pancreatitis, the ratio is reversed. Evidently pancreatitis is something other than a disease dependent upon primary inflammation or lithiasis of the biliary tract. However the many cases of diarrhea with a pancreatic background and especially those with distinct steatorrhea are associated with chronic disease of the gall bladder and biliary system in general. This does not mean that one is necessarily dealing with pancreatitis secondary to gall bladder infection, for Fitz[4] in 1903 found in a review of cases that he was able to collect only twenty-nine instances in which with conclusive evidence of pancreatic disease there were fatty stools. Nevertheless, steatorrhea may follow loss of the pancreatic secretion which in two of our cases was only diminished. These two cases of fatty diarrhea that came under my observation were associated with extensive disease of the gall tract, so much so that their livers were greatly enlarged. Unlike many other cases of pancreatic diarrhea, some of which are mentioned in this paper, they possessed normal gastric acidities. The first patient, a man of 39 years had been studied through the kindness of Dr. W. A. Reed for a period of seven months. Having had a previous history of loose bowels and being a Hondurian he was thoroughly investigated on several occasions for a possible protozoan infestation of the bowel with negative results by myself and once by Dr. S. K. Simon who was called in consultation. The enlarged liver and pathological condition of the bile obtained during the duodeno-biliary drainages suggested chronic bile tract infection. He escaped our attention for a few months until there was a sudden and severe attack of episgastric pain accompanied by fecal vomiting. As his bowels had not moved in three days, these symptoms suggested possible intestinal obstruction. With high enemeta and stupes the situation cleared itself and the bowels were open. This was soon followed by copious and frequent bowel evacuations. When placed on the Schmidt test-diet the stools showed considerable

undigested fat and fatty acid crystals. The pancreatic enzymes were in insufficient strength and especially was this true of the fat-splitting enzyme. Our second patient, also a Latin-American (Cuban) a male, age 41 years, has a chronic intermittent diarrhea of two years duration. His condition had grown much worse during the three months prior to coming to me. Every three or four days during this time, his bowels would move ten to fifteen times in the twenty-four hours but especially in the morning. The picture was one of gall bladder and liver infection of chronic grade associated with a distinct steatorrhea. Again the pancreatic secretion was insufficient in its digestive capacities but this was more the case during the days of numerous bowel movements, remitting on the few days of rest that came between attacks. The treatment of this case was purely medical and included numerous and regular duodenobiliary drainages which gave some relief from the gall bladder pain and reflex gastric symptoms but a fat-free diet was necessary to partially enhance the intractible diarrhea which continued to give trouble. As to the value of administering specific glandular therapy, I will take that question up under the treatment of a few other cases that were under better control for the study of its effect. Before leaving the heading of clear-cut fatty diarrhea, it may be well to state that in animals it has been found possible by the administration of fresh pancreas to increase the assimilation of fat and protein impaired by extirpation of the pancreas. Abelman[5] has found that pancreas of the pig fed to dogs from which the organ has been removed aids the absorption of fat.

In face of the clearly indicated need of surgical interference and the resulting removal of a diseased gall-bladder, one may occasionally encounter a very stubborn but unusual type of diarrhea. I now have reference to the chronic diarrhea following cholecystectomy. Brown[2] speaks of two such cases and states that he believes the condition to be due to pancreatic disturbance and brought on by a reflex inhibition of the pancreatic secretion as a result of cholecystectomy. On the other hand, Moore[6] has shown that in rare instances secondary operations prove the presence of pancreatitis following cholecystectomy. From a clinical standpoint, one must first of all recognize and distinguish the type of diarrhea of this nature from

the frequent and temporary increase in the bowel movements as a result of the continuous flow of bile into the intestinal tract following gall bladder removal.

The two cases of pancreatogenous diarrhea following cholecystectomy that came into our studies were more of the excessive protein or azotorrheic type. A man of 37 years, who was referred by Dr. H. J. Dauterive, had his gall bladder and appendix removed because of distressing gastric symptoms. He was immediately relieved and gained weight during the following few months when he would have from 4 to 5 stools every morning. There were no other symptoms. The examination was negative physically. The gastric contents were achbrydic. The stools showed numerous unchanged muscle fibres. Analyses of the duodenal contents showed the protein and fat splitting ferments to be deficient and the starch splitting enzyme to be normal. He was first placed on large doses of hydrochloric acid and greatly relieved for two months when he witnessed a sudden and more severe attack of diarrhea. He was then placed upon pancreatin, 5 grains three times daily with the HCl continued. Withal, there was considerable improvement and he felt better than while taking the acid only. Nevertheless, the continued presence of free protein in the stool after two weeks of this combined therapy prompted us to double the dose of pancreatin for further aid to duodenal digestion which evidently remains impaired.

The second case under this group was seen with Dr. A. Jacobs who reported having removed a strawberry gall bladder as evidenced by the report of the pathologist as well as a chronic appendix. This woman complained of having developed diarrhea a few weeks following her operation. Every three or four days the stools would number as many as six or seven while in the interim she would have at least three stools daily. The feces showed a great number of undigested striated muscle fibres and a few Giardia intestinalis cysts. The analyses of the duodenal contents showed an absence of fat-splitting ferment and a deficient protein ferment. Microscopic studies of these contents showed thousands of vegetative Giardia present, such as has been described previously by Simon and others. The biliary duodenal drainage showed evidence of hepatic disease remaining. With the presence of the protozoan infestation of

the duodenum and frequent bowel movements, there was a possibility of cause and effect. The administration of 5 doses of silver salvarsan intraduodenally, aggregating a dosage of 7 decigrams in four weeks, caused the disappearance of the giardia in both the duodenal contents and stools. But, the diarrhea persisted. Therefore, the condition was then treated as one due to the already recognized disturbance of proper digestive function. The giving of pancreatin resulted in two stools daily for two and one-half weeks, up to the present, and the disappearance of undigested food from the feces.

It may be well to state that although the histories and findings of each case cited above are brief in order to give only the essential points and thereby conserve time, each was subjected to blood, urine, radiologic and the other examinations of importance.

In conclusion, I would like to say that in treating a case of diarrhea coming under the large group of disgestive disfunctions one cannot be satisfied with the findings of deficiencies in certain organs but must go further into the nature of their involvement which may prove to be inflammatory, malignant, syphilitic, functional or otherwise.

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DISCUSSION.

Dr. S. K. Simon (New Orleans): Dr. Silverman's paper stressed particularly the point that diarrhoeas do not always originate in the colon. In fact, a case of diarrhoea involves a complete study of the body and particularly of the entire digestive tract, starting with the mouth and going slowly downward. I have seen cases of diarrhoea which have eventually been traced to infection of the tonsils. In fact, the farther I go into the study of infectious conditions of the upper digestive tract, the more I am impressed with the importance of infections of the mouth as a precursor of subsequent infections farther down the digestive tube. Certainly no diagnosis of diarrhea is complete without a careful examination of the mouth from the viewpoint of possible infection.

As we come down, the stomach as a cause of diarrhea brings out the point that Einhorn raised twenty-five years ago, that is, the

presence of achylia cardia gastrica in many cases of diarrhea as an etiological factor. These cases of achylia gastrica were looked upon by Einhorn and up until recent times as true cases of functional disturbance of secretion. However, in the light of our present knowledge I think many of these so-called cases of functional diarrheas represent infectious gastritis probably originating in the mouth, and this as a result of fibrosis of the mucosa with annihilation of the glands. This process very often starts downward, causing a pyelitis and in some instances in the gall tract resulting in cholecystitis. Be that as it may, in a majority of cases of achylia gastrica you will find an infected gall bladder either as a sequella, or certainly as an accompaniment. The same holds true in so-called pancreatic achylias which represent an increasingly important group. The relationship of pancreatitis with cholecystitis is of course a problem that has been worked out in recent years and there is no question in regard to the close connection between the two conditions.

Dr. Silverman is deserving of a great deal of credit. His study in connection with Professor Denis of Tulane is bound to bear very important fruit. He is doing this work in an original way by means of the duodenal tube, obtaining the pancreatic juices direct from the duodenum and investigating the disturbance of pancreatic secretions from a chemical viewpoint as we have always done with the stomach contents in the past. The duodenal tube has opened up this new field and made possible the examination of pancreatic secretions as well as biliary secretions, and in a few years we will hear more of the importance of examination of secretions of the upper intestinal tract than we have in the past.

Dr. W. H. Harris (New Orleans): I happen to be familiar with certain features of the work of Dr. Silverman carried out in connection with Dr. Denis. Dr. Denis is probably one of the leading physiological chemists of the country, and in talking with her about the possibilities of the pancreatic juice observations she seems of the opinion that the studies along this line will afford us a great deal of valuable information. I think Dr. Silverman is to be congratulated upon the systematic and scientific manner in which he has handled this subject.

Dr. John T. Halsey (New Orleans): I would like to say that we older members like to hear papers from our younger members present, papers that contain evidence of hard, intensive work, and I believe I voice the sentiments of a great many here in congratulating Dr. Silverman for his work and the manner in which he has presented this paper.

LETHARGIC ENCEPHALITIS (EPIDEMIC), REPORT OF FOUR CASES WITH RESIDUAL SYMPTOMS.*

By W. S. KERLIN, M.D.

With the passing of the epidemic of lethargic encephalitis which was especially prevalent during the earlier part of 1919-1920, interest in the disease has also waned. It is only after a long period of time, however, that we can fully estimate the damage done by the infection and appreciate its gravity.

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*Read Before the Louisiana State Medical Society Meeting, April 11-13, 1922.

According to the figures given out recently by the U. S. Department of Commerce through the census bureau, lethargic encephalitis is mentioned as having a low incidence in the South. Louisiana in 1919 reported sixteen cases but in 1920 only fourteen cases. According to the Bureau of Census Figures the disease was given as the cause of 1,505 death certificates in the United States in 1920, against 589 in 1919. For the last year in which the figures were secured it was shown that 1,453 deaths occurred among the whites and only 52 among the colored population. If these figures are correct it indicates neglect on the part of the doctors in recognizing and reporting this disease; for no less than twelve to sixteen cases have come under our observation since the early part of 1920.

So much has been written about this unusual disease that it hardly seems necessary for me to go into detail regarding its etiology which is unknown, its symptomatology and pathology.

Therefore, I believe this paper will best serve its purpose by relating in detail the case histories of a few cases that have come under our observation within the past two years presenting late manifestations and recrudescence of symptoms. It will also be observed that the symtoms as related by each patient of this group corresponds somewhat in sequence and detail. This is true in a great number of cases, contrary to what one would expect in dealing with a disease so protean in its manifestations.

Case 1. Miss R. B., white, age 21. Examined March 18, 1920.
Complaint: Inability to control her movements, restlessness and jerking of hands.
Family history: Negative.
Past history: Whooping cough and brain fever at age of three years; frequent attacks of tonsillitis; pneumonia several years ago.
Menstrual history: Began at age of fourteen and has always been regular.
Present illness: Duration six weeks; onset gradual with a rather severe attack of influenza, within nine days' time she developed pneumonia. During the crisis on the fifth day she developed mental symptoms, being irrational at times. Mental symptoms have persisted. Patient had to be restrained in bed at times, jerking of muscles of both hands present from onset of mental symptoms. History of dimness of vision coming on early. No history or evidence of double vision. She also complained of intense itching of skin of the hands, neck and chest; frequently she would scratch herself until she bled, leaving raw surfaces. Dribbling of saliva since onset which has remained constant. Mental symptoms not impaired. Temperature ranged from 99 to 102 during the acute stage.
Physical examination: Inspection: Under-nourished; mask-like expression present; constantly moving about in bed and always

clearing throat; constant movement of upper extremities and twitching of the right rectus abdominis muscle; dribbling of saliva profuse; constantly picking at nose and causing it to bleed; the deep reflexes markedly exaggerated; practically all the muscles in a state of spasm; physical examination otherwise negative.

Laboratory findings: Urine negative; cerebro-spinal fluid negative as to the Wassermann test, cell count and increased globulin.

On March 15, 1922, one year later, her mother reports that her daughter is gradually losing her mind, stating further that she is in a constant state of fear; mother also states that patient can get around; however, with difficulty. Nearly all symptoms, according to her mother, as related above, have reappeared at intervals and are still present in a varying degree.

Case 2. C. A. H., white, male, age 20. Examined April 28, 1921.

Complaint: Constant yawning and drowsiness.

Family history: Negative.

Past history: Measles and mumps when a child; influenza with pneumonia in March, 1920; denies venereal diseases.

Present illness: Duration three months but preceding this illness he had influenza with pneumonia in March, 1920, which no doubt was the time of onset of present trouble. Following this acute attack in March, 1920, he was unconscious for two or three days; meningitis was suspected but was ruled out on spinal puncture and examination of the fluid.

Present complaint: Came on rather suddenly three months previously up to which time he reports that health was fairly good. The first symptoms complained of were a desire to yawn which shortly became uncontrollable; experienced difficulty in going to sleep at night, remaining awake usually until one or two o'clock A. M.; has been getting gradually weaker; goes to sleep very easily during the day and does so quite often; dribbling of saliva began early and has continued to the present time; frequent urination during both day and night from onset until one month ago. Up three and four times during the night, passing large quantities of urine; buzzing in ears also complained of.

Physical examination: Very strong, robust individual; face flushed; typical mask-like expression, constant yawning with dribbling of saliva; blephero-spasm but no disturbance of vision; severe inflammation of the throat; physical examination otherwise negative except for exaggerated patella, abdominal and cremasteric reflexes.

Laboratory findings: Urine negative; total white cell count 6,000; differential count, L. M. 7%, S. M. 29%, Polys 54%, Eosin 4%, Trans 6%. Spinal fluid examination in March, 1920, negative for Wassermann; no increased globulin.

Additional notes: Patient seen May 7, 1921. Some slight improvement in symptoms noted; pytalism and yawning persist. Patient again seen September 15, 1921. Symptoms practically same as at last observation. Report made on patient in January, 1922, was to the effect that the symptoms were practically unchanged.

Case 3. Mrs. R. W. S., white, married, age 52. Examined February 6, 1922.

Family history: Father died at age 63 of paralysis, mother died at age of 45 from abscess in the abdomen.

Past history: Usual diseases of childhood. Influenza denied.

Marital history: Mother of two children, youngest 23 years of age. Both full term. No miscarriages. She has not menstruated since April, 1921.

Complaint: Nervousness, tremor principally of muscles of right leg.

Present illness: Duration since January, 1920. Onset sudden during the night, with restlessness, talking at random and crying. The next day patient was no better and imagined everything wrong with her. During the day on looking about the room she noticed that each object appeared as two, this double vision persisting for three days but has not recurred up to the present. She continued getting worse and could not sleep at night. Drawing of the muscles of mouth and sighing came on early, persisting for three days and recurring at long intervals up to the present. She remained in bed for one month after onset, then able to be up and about at work but has never regained her former strength. However, her health remained fairly good up until July, 1921, at which time she was again forced to go to bed on account of extreme weakness. In November, 1921, in addition to weakness, she would go to sleep in the presence of company but was very restless at night. Drowsiness and weakness have increased up to the present. Ptyalism developed two months ago and has persisted. Buzzing in the ears came on one year ago and persisted for two months. Muscles of right leg began twitching about two months ago and have persisted more or less continually since.

Physical examination: Inspection—Fairly well nourished, mask-like expression present, co-ordination good, pupils reacting normally to light and accommodation, teeth in very bad condition, marked pyorrhea present. Deep reflexes exaggerated. Coarse tremor of right lower extremity present. Physical examination otherwise negative.

Laboratory examination: Urine negative; total red cell count 4,350,000; total white cell count 11,800; hemoglobin 85%; differential count, L. M. 5%, S. M. 9%, Polys 86%, blood Wassermann negative.

Note—This case has not been seen since first examination. Received a report within the past few days however to the effect that she had not improved but that she had had a slight relapse recently.

Case 4. L. L., white, male, age 15 years, schoolboy. Examined May 27, 1920.

Complaint: Nervousness, weakness of back muscles.

Family history: Negative.

Past history: Measles, mumps, whooping cough when a child; typhoid fever in 1917. Duration eight months, beginning gradually latter part of September, 1919. After witnessing an accident in which a negro was killed, he began worrying a great deal. Two weeks later his teacher noticed that his eyesight was getting bad; double vision came on early. The first symptoms noted by his father were jerking of all extremities and biting of finger nails. Father also noticed a mask-like expression. Patient had severe sweating spells with slight temperature in the beginning. Frequent urination in the beginning with polyuria. His condition cleared up for a month or so except for extreme weakness and jerking spells.

Physical examination: Inspection—Fairly well nourished. Typical mask-like expression. Unsteady gait. Assumes a stooping posture with head and trunk inclined forward. Spine held more or less rigid. A fair degree of spasm present in all muscles on attempting passive motion. Both superficial and deep reflexes exaggerated. Physical examination otherwise negative.

Laboratory examination. May 29, 1920, urine negative. Total leucocyte count 5,000. Cerebro-spinal fluid under pressure but clear. Cell count 8. No increased globulin.

In October, 1920, he was seen at the Mayo Clinic by Dr. Adson, who rendered the following report: "From the history of the case

it appears that the boy has been suffering from a low-grade chronic infection very similar to the so-called lethargic encephalitis which has been fairly prevalent. The neurological examination presented a picture frequently seen in juvenile Parkinson's disease, but from the history and apparent improvement in the boy this diagnosis does not seem tenable. The extreme rigidity, the mask-like face, the reduction in speed and general motility all seem on the upgrade and though one cannot prognosticate definitely it is our opinion that the boy will improve considerably."

Additional notes: Dr. Pirkle, who had seen this boy in the beginning, presented him before the Shreveport Medical Society September 7, 1921, at their monthly meeting. The stooping posture with head thrown forward and a tendency to a running gait still persisted; mask-like expression was also present. However, there had been some apparent improvement.

Summary of Case: This case has presented symptoms over a longer period of time than any that has come under our observation covering a period of approximately two and a half years, having its onset in the latter part of September, 1919, with the prospects that the symptoms will persist indefinitely.

Conclusion: (1) While recovery is relatively frequent the occurrence of grave sequelae should warrant a guarded prognosis.

(2) If seen in its earliest stages, a careful case history obtained and observed throughout its course most all typical symptoms can be demonstrated.

(3) In any case presenting the following symptoms: fever, cranial nerve paralysis, accompanied by stupor or lethargy with muscle spasm and tremor, together with mask-like face a diagnosis of so-called lethargic encephalitis should be seriously considered.

(4) Netter states that lethargic encephalitis is contagious without a doubt, saliva very probably being the carrier of contagion.

DISCUSSION.

Dr. Lionel L. Cazenavette (New Orleans): The subject of Dr. Kerlin's paper opens a broad field for discussion. The case presented shows, I believe, the after-effect of the disease. There is little doubt in my mind that, if we were to examine our unusual nervous cases more closely, we would find more frequent evidences of this disease.

It is recognized that to make a diagnosis of encephalitis lethargica it is necessary to make a very thorough and complete neurological examination, including, of course, blood and cerebro-spinal fluid tests. This, because of lack of time and experience, is not usually capable of being carried out by the general practitioner. The final diagnosis must rest on the neurologist. I think it is well here to emphasize a few points regarding certain clinical manifestations that should suggest to the general man that he is possibly dealing with a case of encephalitis lethargica. The true etiology of the disease has not been definitely established. It is accepted that in-

fluenza and encephalitis are two distinct diseases, though it is known that encephalitis has made its appearance, during and after severe epidemic of influenza. As we have recently had a mild visitation of grippe, it would be well to be on the lookout, and remember that when a patient presents marked asthenia, prolonged somnolence, perhaps a state closely resembling lethargy, paralysis of some cranial nerves, particularly the oculo-motor and some rise of temperature, there is a strong possibility of dealing here with a case of encephalitis lethargica.

Some observers mention thirty or more types of this disease, others limit themselves to as few as four or five. This variance is insignificant compared with the manifold symptoms of the disease. The word encephalitis means inflammation of the brain; with this in mind, one can realize these manifold symptoms to be due to the different localities in the cerebrum (usually the basal ganglia) that may be affected.

One type frequently met with, exemplified by the case here presented, is the Parkinsonian type. Here we have a peculiar position of the hands and body as frequently seen in paralysis agitans, muscular rigidity, a mask-like facial expression, a cataleptoid attitude and tremors continuing with limbs at rest. To this may be added ocular paralysis.

Another is the myoclonic or algo-myoclonic type, which is characterized by pain and muscular spasms. The muscular twitchings may occur in different groups of muscles. I recall a case, seen with Dr. E. L. King, of New Orleans, in February, 1919, where the spasms were particularly marked about the shoulders and arms. Together with this muscular twitching, there was a very severe asthenic state, from which the patient never rallied.

Again another, is the choreo-ataxic type, characterized by, as the term implies, choreic and ataxic movements. I saw one case of this type during the winter of 1919. It was that of an Italian girl, sixteen years of age, who came to the Presbyterian Hospital clinic, because of nervousness (meaning disordered movements in limbs and body), and because of her unwillingness to obey and do anything; not even taking part in conversation. As her mother expressed it. "She wants to sleep all the time, she is very nervous, she jumps even in her sleep." The peculiar features here were the choreo-ataxic movements which persisted even during sleep, and frequently affecting the abdominal group of muscles. This patient was treated and observations made at her home. She showed marked asthenia. She improved very slowly and finally recovered.

Other types could be mentioned, such as the cataleptic and the psycotic and others, but my time limit is over. In conclusion, I wish to summarize my remarks by emphasizing that, if you see a patient presenting marked asthenia, somnolence, if not lethargy, oculo-motor paralysis and fever, think of encephalitis lethargica.

Dr. C. S. Holbrook (New Orleans): Epidemic encephalitis was very prevalent during 1918, 1919, 1920 and 1921. Dr. Van Wart and I saw somewhere near 50 cases with a mortality of about 12 per cent, with two complete autopsies. The findings in these two autopsies were the same as those which have been described in current literature. In the past year there has been a marked falling off in these cases. I have seen six definite cases in the past six months, but the decline in the number of cases has been very striking compared with the previous years.

It must be remembered that isolated cases of encephalitis have been constantly with us and therefore every case of encephalitis must not be considered as epidemic encephalitis.

Dr. R. M. Van Wart (New Orleans): Dr. Kerlin is to be congratulated on his presentation of these cases. I have had the opportunity to examine this patient and the case is very interesting, first from the point of view of the length of time this thing persisted, and second, the small amount of improvement that has occurred. At the outset of the epidemic of lethargic encephalitis, a number of cases presented this picture. Lethargic encephalitis is an acute infectious disease localized about the basal ganglia. I believe the problem this case presents raises the question of the residual symptoms of the disease rather than the persistence and continuation for this length of time. The number of late results from this disease has not been great. In our series that Dr. Holbrook has just mentioned, we only had one case and that was a case of myelitis which has persisted up to the present time. So I am inclined to think that this case is one of degeneration of the corpus striatum as a late result of the infection and not due to a continuation of the infection itself.

Dr. W. S. Kerlin (closing): This year I have seen only one or two new cases presenting symptoms and clinical findings of the disease, which is quite a contrast for years 1920 and 1921. I want to thank the doctors for their very interesting discussions; also Dr. Knighton for the privilege of reporting these cases and Dr. Pirkle for the privilege of presenting Case 4.

A CORRELATION OF THE BLOOD, SPINAL FLUID AND CLINICAL FINDINGS IN A NUMBER OF UNSELECTED CASES PRESENTING A PROBABLE SYPHILITIC CONDITION.*

By F. M. JOHNS, M.D., New Orleans, Louisiana.

Just when is an examination of cerebro-spinal fluid advisable or indicated in the diagnosis of the late manifestations of syphilis and of what value are the findings as compared with the blood reactions, are questions that are frequently asked of the laboratory. I have long been convinced that many cases can not be properly diagnosed or the extent of the disease conceived without the full examination of the spinal fluid; and yet I believe a lumbar puncture is a serious enough procedure to make needless examinations undesirable.

The factors producing the positive blood Wassermann test are but little understood. In a gross way the presence or absence of a reaction is more or less dependent upon the extent or "quantity," of syphilitic process that is or has been going on in the patient. The spinal fluid Wassermann seems to be derived by a slow "filtration" process from the antibodies present in the blood stream. Once established in the spinal fluid, the reaction often persists long after the blood reaction has disappeared.

*Read Before the Louisiana State Medical Society Meeting, April 11-13, 1922.

The great majority of late syphilitics present some central nerve lesions. The great majority of these are lesions that affect principally the blood vessels and are also accompanied by more or less involvement of the vessels that supply the surface of the brain and spinal cord, and the meninges.

Interference with the circulation of the blood in the meninges results in areas of localized edema with the production of a transudate rich in albuminoid substances, globulins and salts. The increase in the globulin content of the cerebro-spinal fluid is easily determined, and this increase constitutes the first real laboratory evidence of a disordered circulation (or inflammation) of the meninges.

Salts precipitate a colloidal solution. Albumins protect it against precipitation. These two substances are both increased in variable quantities in the transudates produced in the varying degrees of activity of meningeal inflammations and from these factors we get a great deal of corroborative evidence in the colloidal gold reaction.

A somewhat more active process leads to a cell proliferation and desquamation of the surface of the meninges which increases the cell count above the normal for spinal fluid.

A marked meningeal reaction is of course accompanied by definite clinical evidence. It has been also definitely shown that the examination of the spinal fluid may reveal a meningeal involvement before clinical evidence is apparent. To get some first-hand evidence on the correlation of these abnormal findings I have fortunately been able to obtain the generous co-operation of a number of physicians who have referred patients for blood and spinal fluid studies, to go over their case records and note all well defined direct or indirect evidences of meningeal involvement. In this way I have tabulated the blood and spinal fluid Wassermann, the globulin content, the cell count, the colloidal gold curve, the ultimate diagnosis of the case, and the presence or absence of the following symptoms: Headache, Vomiting, Stiffness of neck, shoulders or thighs, Oculomotor palsies, Epileptiform seizures or movements, Aphasic attacks, Mild psychoses, Parasthesias, Increased reflex excitability, Functional bladder or rectal disturbances. One hundred cases were selected at random. These represent the usual class of cases presenting in private practice and should therefore present more of the early types of central nervous involvement.

No.	Case	Wassermann Blood	Wassermann C.S.F.	Globulin	Cells	Colloidal Gold	Pressure	Diagnosis	Symptoms Referable to Meningeal Lesions
1.	F. J. F.....	—	—	+++	21	1233311000		Tabes dorsalis	Lightning pains, ataxia, reflex disturbances
2.	T. E.	—	—	+	10	1211000000		Lateral Sclerosis	Parasthesia, reflex disturbances
3.	J. H. F.....	—	—	—	7.5	0000000000		Depression Psychosis	Slight speech disturbances, "Nervous breakdown"
4.	Mr. D.....	—	—	—	6	0000000000		Treated for lues 18 years ago	None
5.	D. P.	—	—	+++	26	5455531000		General paresis	Melancholia, slight ataxia, altered reflexes
6.	K. S. C.....	—	—	—	<1	0000000000		General paresis	General irritability only
7.	J. M. Q.....	—	—	—	2.5	0000000000		Migraine	Headaches
8.	Mr. O.....	—	—	—	<1	0000000000		Depression Psychosis	None
9.	E. N.	—	—	—	<1	0000000000		Normal. Father leutic	None
10.	Miss H.....	—	++	++	15	4433210000		General paresis	Nystagmus, spastic gait, etc.
11.	B. B.	—	—	—	5	0000000000		Muscular distrophy	Slight speech disturbances, drop foot, atrophies, etc.
12.	M. S.	—	—	—	5	0000000000		Psychoneurosis	Headaches, pain in neck, nervousness, psychoses
13.	R. J.	—	—	+	<1	0000000000	+	Migraine	Diplopia for a few days only
14.	E. L. W.....	+++	++	+	17.5	1111110000		General paresis; some treatment	Parasthesias, pains in back of head and neck, numbness, etc.
15.	Mr. N.....	+++	+++	+++	56	234454310		General paresis	Lightning pains, disturbed reflexes, etc.
16.	J. S. S.....	—	—	+	10	000000000	+	Tumor of Spinal cord	Psychoneurotic symptoms, pain and tingling in left leg
17.	L. S.	+	++	+++	77.5	0011111000		C. S. lues	Parasthesias tongue and face, lightning pains, headaches, etc.
18.	Mrs. Q.	—	—	—	<1	0000000000		Normal	None
19.	D. P.	+	++	+++	42.5	5554421000		General paresis	Lightning pains, "rheumatism," slight ataxia
20.	Mrs. R.	—	—	—	2.5	0000000000		Migraine	Headache
21.	E. L. N. O.	—	+	+++	50	5543332210		General paresis	Psychoses, altered reflexes, oculomotor disturbances

21.	E. L. N. O.	—	+	+++	50				
22.	E. L.-A.....	—	—	+	1	1100000000		Encephalitis lethargica	Pain in head, neck and arms, diplopia; not oriented.
23.	L. McC.....	—	++	+	10	1111000000		Tabes dorsalis	Ataxia, pains in legs, disturbed reflexes
24.	Mr. C.	—	—	—	5	0000000000		Constitutional inferior	None. Slight ataxia, nervousness.
25.	R. E. F.	—	—	—	5	0000000000		Paralysis agitans	Disturbed mental processes
26.	A. B. L.	—	—	+	5	0000000000		Chronic nephritis	Backache, severe headache, weakness in limbs
27.	F. B. B.	—	—	+	2.5	0112221000	+	Tabes dorsalis; some treatment	Lightning pains, left knee jerk absent, oculomotor paralyses
28.	G. A.	—	—	—	<1	0000000000		Encephalitis (?) Bl. vasc. changes	Rt. heminopsia, dizzy spells, occasional diplopia
29.	R. C. B.....	—	—	—	5	0000000000		Spinal cord tumor	Marked parasthesias and pains of legs and thighs
30.	R. B.	—	—	—	2.5	0000000000		Constitutional inferior	General pains and headaches
31.	C. H.	+	+++	+	102.5	0011110000		Cerebro-spinal lues	Headaches, reflexes sluggish, Slt. Argyll-Robertson pupils
32.	A. L. H.....	+++	+++	+++	104	5554432100		General paresis	Extreme nervousness, apprehensive, etc.
33.	L. C.	—	—	—	5	0000000000		Lethargic encephalitis	None
34.	R. S.	—	—	+	<1	0000000000		Arterio-sclerosis	Headaches, convulsive seizures with aphasia
35.	I. K.	—	—	—	5	0000000000		Hysteria	Aphasia, hysteroid attacks.
36.	J. A. L.....	—	—	—	2.5	0000000000		Depression psychosis, probably luetic	None
37.	G. C. R.....	—	—	—	<1	0000000000		Toxic convulsion	None
38.	S. L. V.....	—	—	—	2.5	0000000000		Psychoneurosis	Dizziness, mental apathy
39.	G. H. Y.....	—	—	—	2.5	0000000000		Traumatic injury of brachial plexus	None
40.	Wm. W.....	—	—	+++	32.5	0000011111	+	Spinal cord tumor	Parasthesia of legs, altered reflexes
41.	B. W.	—	—	—	6	0000000000	+	Encephalitis lethargica	Rigidity of muscles of neck, accentuated reflexes

No.	Case	Wassermann Blood	Wassermann C.S.F.	Globulin	Cells	Colloidal Gold	Pressure	Diagnosis	Symptoms Referable to Meningeal Lesions
42.	L. H. A.	+++	+++	++	64	5555553100		General paresis	Reflex disturbances, tremors of speech
43.	E. C.	++	++	+++	30	5555421000		Cerebro-spinal lues	Diplopia
44.	F. B. F.	+++	+++	+++	50	5555542111		General paresis	Lightning pains, aphasias, parasthesias, etc.
45.	S. C.	+++	+++	+++	152.5	2344555444		Tabes dorsalis	Ataxia, pains, etc.
46.	M. W.	—	—	—	<1	0000000000		Melancholia	None
47.	M. K. S.	—	—	—	7.5	0000000000		Epilepsy	None beyond typical epileptiform seizures
48.	F. A. S.	+++	+++	+++	28	1234443100		General paresis	Convulsions, mild psychoses, grandiose ideas
49.	J. L. W.	—	—	+++	22.5	3233321000		Cerebro-spinal lues	Depression psychosis, somnolent
50.	J. McC.	+++	+++	++	52.5	0001321000		Cerebro-spinal lues	Parasthesias, exaggerated reflexes, etc.
51.	A. S.	+++	+++	+	5	0000000000		Organic lues	None
52.	Miss M.	—	—	—	5	0000000000		Hysteria	None
53.	C. H.	—	—	++	30	0122100000	+	Tabo-paresis (treatment)	Oculomotor paralyses, lightning pains, slight ataxia
54.	U. W.	—	—	—	<1	0000000000		Psychosis	None
55.	P. D.	—	—	—	12	0000000000		Encephalitis lethargica	Muscular rigidity
56.	Y. LeM.	+++	+++	+++	87.5	3455554310		Tabes dorsalis	Lightning pains, ataxia, etc.
57.	J. E. L.	—	—	+	<1	0000000000		Brain tumor	Muscular twitchings
58.	C. H. G.	—	—	+	12	0000000000		Epilepsy	None
59.	S. C. A.	—	—	—	2.5	0000000000		Depression psychosis	None
60.	A. J. B.	+++	+++	+++	157	2344443100	+	Tabo-paresis	Headaches, pains, ataxia, etc.
61.	T. J. U.	—	—	+	7	0012210000	+	Glioma of brain	Facial paralysis, aphasia, tremors
62.	E. C. G.	—	—	—	<1	0000000000		Normal	None
63.	R. W. B.	+++	+++	+++	157	2344443100		Tabes dorsalis	Ataxia, etc.
64.	M. J.	—	—	—	<1	0000000000		Normal	None
65.	S. W. P.	—	—	—	5	0000000000		Normal	None (nervousness)
66.	L. S.	—	—	—	<1	0000000000		Normal	None

66.	L. S.				<1	0000000000			
67.	Mrs. A.	−	−	−	<1	0000000000		Normal	None
68.	F. M.	−	−	+	28	————	+	Cerebral tumor	Parasthesias, headache, etc.
69.	Mrs. V.	−	−	−	2	0000000000		Migraine	Headaches
70.	T. J. B.....	−	−	−	<1	0000000000		Tabes dorsalis	Pains in joints and muscles, Argyll-Robertson pupils
71.	J. D.	−	−	−	2.5	0000000000		Normal	None
72.	J. W.	−	−	+	0.5	0011111000		Migraine, lues (?)	Headaches only
73.	W. H. P.....	−	−	++	62.5	1121210000		Cerebro-spinal lues	Headache, facial paralysis, some hemiplegia
74.	H. N. H.....	−	−	−	1	0000000000		Early tabes	Lightning pains only
75.	R. A. W.....	−	−	−	5	0000000000		Lethargic encephalitis or lues	Left pupil wider than right
76.	A. U.	+	++	+++	32	2234432100	+	Tabes dorsalis	Headaches, oculomotor disturbances, parasthesias, etc.
77.	R. C.	−	−	−	2.5	0000000000		Hysteria	Headache, parasthesias, mild psychoses
78.	J. B.	−	−	+++	15	1135553100		General paresis	Headache, stiffness of neck, aphasic attacks, reflexes exaggerated
79.	W. R. S.....	−	−	−	<1	0000000000		Early tabes dorsalis	Argyll-Robertson pupil, reflexes diminished, slight parasthesias
80.	H. D. P.....	−	−	++	2	1221110000		Muscular dystrophy	None
81.	C. D.	−	−	−	5	0000000000		Cerebro-spinal lues	Slight headache, increased reflex excitability
82.	Miss B.....	+++	++	−	12	0000000000		Gumma of brain	Headache, vomiting
83.	Mrs. W.....	−	−	+	1	0111111000		Encephalitis lethargica	Headache, nausea, stiffness of neck, inc. reflex excitability
84.	A. W.	+++	+++	+++	92	3444332100		Tabes dorsalis	Oculomotor disturbances, parasthesias, psychoses, ataxia
85.	Miss C.....	+++	+++	+++	67.5	3333321000		Cerebro-spinal lues	Headache, vomiting spells, increased reflex excitability
86.	C. G.	−	−	−	3	0000000000		Encephalitis lethargica	Headache, pain and stiffness of neck, exaggerated reflexes, etc.

No.	Case	Wassermann Blood	Wassermann C.S.F.	Globulin	Cells	Colloidal Gold	Pressure	Diagnosis	Symptoms Referable to Meningeal Lesions
87.	L. S.	—	—	+	5	0111210000		Syphilis, central nervous system involved.	Decreased reflexes, headache
88.	R. J.	—	—	+	25	2333321000		Cerebro-spinal lues	Decreased reflex excitability, marked headaches
89.	A. M. W.....	—	—	—	2.5	0000000000		Non-luetic	None
90.	P. H. B.....	—	—	—	2	0000000000		Epilepsy (?)	2 Epileptiform attacks
91.	Mr. K.....	—	—	—	2.5	0000000000		Non-luetic	None
92.	E. J. K.....	—	—	—	5	0000000000		Non-luetic	None
93.	W. W. K.....	—	—	—	<1	0000000000		Tertiary syphilis	Periodic headaches, muscular stiffness, frequent aphasias
94.	W. P. B.....	—	—	—	1	0000000000		Arterio-sclerosis, etc.	Nothing definite
95.	C. M. S.....	++	—	—	5	0000000000		Syphilis, persistently (+) Wassermann	None
96.	C. D.	—	++	+++	52.5	0012322100		Cerebro-spinal lues	Oculomotor paralyses, altered reflexes, slight ataxia, etc.
97.	R. E. N.....	—	—	—	<1	0000000000		Non-luetic	None
98.	J. E. K.....	+++	+++	+	15	4444310000		Early paresis	Psychoses, absent reflexes, headaches
99.	N. L.	—	—	—	2.5	0000000000		Non-luetic	Periodic headaches
100.	G. L.	+++	+++	+++	595	2333321000		Cerebro-spinal lues	Psychoses, dementia, markedly exaggerated reflexes

Note: 1+ = weakly positive; 2+ = positive; 3+ = strongly positive reactions.

SUMMARY.

In 100 cases in which syphilis was possibly present, 42 cases were diagnosed as such.

85% of the positive diagnoses had confirmatory laboratory findings present in blood or spinal fluid.

40 cases had clinical evidence of organic central nervous system involvement, with 39 showing clinical evidence of meningeal involvement and 34 of these gave evidence of organic degenerative changes in the spinal fluid.

All of the cases in this limited series that presented either an increased globulin content, +colloidal gold reaction or increased cell count presented some degree of symptoms referable to a meningeal involvement.

Two cases with tertiary lues with no evidence of central nervous involvement gave neither increase in the globulins and cells nor reaction with colloidal gold.

Of the 40 cases with central nervous involvement, the various laboratory procedures gave positive findings as follows:

Positive blood Wassermann reactions in	21 cases	or 52%
Positive spinal fluid Wassermann reactions in	25 cases	or 62%
Increased globulins in spinal fluid in	33 cases	or 82%
Increased cell count in spinal fluid in	33 cases	or 82%
Colloidal gold ppt. by spinal fluid in	33 cases	or 82%

CONCLUSIONS.

This is too small a number of cases from which to draw very definite conclusions. It is apparent, however, that lumbar puncture yields at least one-third more definite diagnostic evidence in these cases than the blood test alone.

All cases presenting a possible syphilitic etiology and with symptoms referable to a meningeal reaction should have spinal fluid studies done before an ultimate diagnosis and prognosis is made.

The number of positive diagnoses (34), (made or confirmed by the laboratory) as shown in this small, but unselected, series of cases would indicate that there must be a large number of comparatively early cases not found by the routine clinical examination in conjunction with the blood Wassermann alone.

As practically all of these cases had symptoms referable to a meningeal reaction, it would not be fair to assume that evidence

of organic changes in the meninges, as shown by the spinal fluid, is not present before the symptomatology appears.

DISCUSSION.

Dr. C. S. Holbrook (New Orleans): It is always worth while for the laboratory man and the clinician to get together and find out just how the laboratory checks up with the clinical findings. There has been one outstanding observation that has been present in nervous and mental diseases, and that is that the blood Wasserman itself is of little value. In cases that have a history of syphilis and show nervous and mental conditions suggestive of syphilis, little attention is paid to a negative blood Wasserman. Usually the spinal fluid should be examined at once.

In tabes, for instance, the blood is very apt to be negative and though the spinal fluid generally shows a considerable change, not always is the Wasserman positive. In general paresis a positive finding in the spinal fluid is more frequently found than in locomotor ataxia, but even here the tests are apt to be negative and yet the case be one of progressive deterioration caused by syphilis. Probably 90 per cent of the general paretics will give positive syphilitic tests in the spinal fluid. In doing a large number of Wasserman reactions on the spinal fluids of patients in one of the hospitals, we found that about 25 per cent of those admitted were suffering from cerebro-spinal syphilis and the majority of these gave positive leutic findings.

We should never depend upon a blood examination alone, but rather rely upon the clinical picture that is presented, using the laboratory merely as an adjunct. I wish to commend Dr. Johns on the compilation that he has so thoroughly made. These findings show the value of careful laboratory work.

Dr. R. M. Van Wart (New Orleans): The subject of the relationship of the cerebro-spinal findings to the laboratory findings in cases of cerebro-spinal syphilis, is one of considerable interest. I think the first point that should be stressed is that the laboratories should never displace the clinical examination. The clinical examination is just as important for these patients as the examination of the blood or cerebro-spinal fluid. The laboratories should not be overlooked, because in many instances the clinical findings are obscure, while the laboratories' findings are positive. One sees an occasional case of individuals who have had syphilis and have become worried about the fact of having had it, and asked for an examination of the nervous system. Without symptoms of any kind except a syphilo-phobia, positive leutic findings have been found of marked value. I remember a man who ten years after infection came to us because he could see himself a case of general paresis. Needless to say, that under treatment this man improved, the cerebro-spinal fluid became normal and remained so.

It is important to realize that unless you are famiilar with the various clinical signs these patients should be observed by one who can make this type of examination. I believe it is practical for every practitioner to learn the ordinary things. He can learn to test the pupillary reaction, the knee jerks and question concerning bladder or rectal disturbances. It is also important to remember that sometimes these conditions are accompanied by vague feelings of illness.

I recently saw a man who complained of nothing except that he was a little bit confused and could not understand why. He had been examined by several physicians and they told him that there was nothing the matter with him. I ascertained he had had at one time what was termed a "soft sore." This led to seralogical exami-

nations and the findings were positive for syphilis in both the blood and spinal fluid. In this class of cases it is very important for the physician to realize that sometimes what looks innocent may on examination prove to be a specific infection.

Another point I want to stress is that it is perfectly possible for a man to have syphilis and not know it, particularly individuals who have been exposed to infection. Such cases often show well-marked cerebro-spinal changes and do not know anything about it.

The clinical findings and the laboratory findings should only be read in conjunction with each other. A negative blood Wasserman does not mean that the man is free from infection, but taken with a negative history and negative spinal fluid and clinical findings, it is probable any condition present is not due to syphilis.

Dr. M. H. Foster (Alexandria): I feel that this is not a problem altogether of the laboratory man or of the psychiatrist. It is a problem which comes to every practitioner of medicine. We repeatedly see patients who are uncertain as to the diagnosis of their case, because of two tendencies on the part of the clinician:

One is the tendency to begin treatment without having first made an accurate diagnosis of syphilis. I state to my patients that this is a matter between you and me, just the same as though you were in court on trial. The evidence will not be clinical alone, and neither can we depend solely upon the laboratory. This brings me to the second tendency, which is that we are too prone to relegate the responsibility for diagnosis of these cases to the laboratory worker.

When a patient presents himself for treatment the responsibility rests on the shoulders of the clinical man. **He** should make appropriate clinical studies, and have every proper investigation carried out by the **laboratory worker** and then correlate these findings, making deductions in a logical way, so that he will be able to say to the patient, "You have syphilis," or "You have not syphilis.". If a doctor goes through with this rigid grill and makes an accurate correlation of the findings from all relevant sources I do not believe that the patient will have any doubt as to his diagnosis.

TREATMENT OF TETANUS BY SERUM.*

By D. W. KELLY, M.D., Winnfield, Louisiana.

Homer Gaar, Winnfield, Louisiana, married and has two children. Nothing of interest in family history outside of being negative for venereal diseases.

He stuck a nail in his arm July 2nd, 1921, and also had an infected finger when I saw him July 21st, 1921, at which time function of hands and feet was impaired and jaws partially locked, which was attributed by him to a bad tooth which he had just had pulled.

From July 21st to 28th he was on his feet going about but had severe cramps in arm and legs. July 28th after having driven a Ford car fifty miles I was consulted about his condition. At this time his jaws were locked so that he could barely insert a lead pencil between his teeth.

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*Read Before the Louisiana State Medical Society Meeting, April 11-13, 1922.

The function of his arms and legs and speech was much impaired. I advised him to go home and go to bed at once, as I thought he was developing a general paralysis. I put him on Iodides and Mercury. I thought nothing of the trouble with his jaws, thinking that that condition was due to a tooth.

He had his first convulsion on July 29th, which, from what the family said, was very severe. He had several more before I saw him on the next day about 2 o'clock P. M. He had a hard convulsion while I was at the house. His body was rigid head drawn back, marked Ophisthotonus, no temperature, pulse accelerated, mental faculties clear, face drawn and was like a wooden man.

In the interval between convulsions, you could raisee him off the bed by picking up his feet. He would not bend at the hips at all and was rigid for several days.

At 8:30 p. m., July 30th, about eight hours later, I saw him again. In this interval he was rapidly growing worse, during which time he had several convulsions. On this visit I gave him 10,000 units of Tetanus serum subcutaneously and put him on dram doses of Elixir Bromides with Chloral P. D. every four hours. Convulsions stopped and general conditions improved.

On the morning of July 31st I gave him 20,000 units intravenously. Patient doing nicely. August 1st, 20,000 units intravenously. August 2nd 10,000 units intravenously. Up to this time gradual improvement.

On my next visit August 3rd condition not as favorable as formerly. I gave him 10,000 units subcutaneously. August 4th condition was worse, at which time I gave him 20,000 units intravenously, which was followed by a reaction in temperature with some disturbance of the heart, but after a few hours the reaction subsided. By the next morning he seemed much better than he had been for forty-eight hours.

August 5th, condition good, 10,000 units intravenously.

August 6th, 10,000 units subcutaneously. I noticed each time I lessened the dose of serum he got worse. I had given up to this time 110,000 units, and told the family this was about the maximum the literature showed had been given and we would give him no more.

My patient was doing very well and was showing a gradual improvement. The rigidity was gradually leaving him. About 48 hours after the last dose of serum, all at once, he had a return of convulsions and was unconscious. He bent forward instead of backward.

Now, I was up against it, and realized I was on very dangerous grounds as this was the tenth day from the time I had begun to give serum, and especially so, since I had left off the serum forty-eight hours. As my patient had improved with every 20,000 unit dose, I decided, after consulting with the family, to give him a 30,000 unit dose intravenously. About two hours afterwards it was followed by a reaction which almost killed him. He hung for a week or ten days just barely alive and then began to improve and made a complete recovery.

I gave him Chloral and Bromides from the beginning, and after the tenth day morphine by needle which would control him only for a time. As soon as he would come out from under the morphine he was as wild as a March Hare and it required two or three strong men to hold him on the bed. I gave him 10 grain doses of Chloretone every four hours until I got him to sleeping, after which five to ten grains each night and would keep him quiet.

I attribute my patient's recovery to my heroic treatment with Tetanus serum. Next to the serum there was no drug that served me as well as Chloretone in relieving the wild delirium and causing sleep. I would not advise repeating the 30,000 unit dose, especially after letting the patient come out from under the effects of the serum. The number of deaths I have seen from the Daily Press from Tetanus prompted me to report this case. It is my opinion if you give enough serum you will get results. I believe that we are today in the treatment of Tetanus, just where we were eighteen years ago in the treatment of Diphtheria.

I acknowledged my indebtedness to Dr. J. J. Peters of Winnfield, Louisiana, for confirming my diagnosis and suggestions in regard to the case. I am also indebted to Dr. Urbane Maes of New Orleans, for valuable suggestions after I had finished the serum treatment.

DISCUSSION.

Dr. Charles F. Gelbke (Gretna): The trouble is we do not use doses large enough. I have had four complete recoveries from tetanus, and the fifth was a woman who had had one kidney removed; she finally died of uremia. I gave big doses by vein. Three of the cases are still living. I believe we should use large doses of serum and use it often enough. If you do, you will get results.

Dr. D. W. Kelly (closing): I just want to say that after they develop tetanus there is something else to do besides give them morphine and let them die. The results I got from the treatment of this case convinces me that if you give serum and give it early you will get results. If I were treating a case in a hospital I would not wait twenty-four hours to repeat the dose, but this man lived ten miles from my office, so I did see him but once a day. I believe if you give enough serum you will get results in tetanus, and the death rate instead of being 75 per cent, will be considerably less.

BLOOD PRESSURE.*

By H. GUY RICHIE, M.D.

As we go on in medicine we are impressed by the fact that improvement in our means of examination, while it adds to our knowledge and is greatly to the benefit of our patients, adds also to the complexity of the problems which we have to solve.

The improvement in the means by which we estimate blood pressure is no exception to this for in the days before which we were given instruments by which we could make exact blood pressure readings we had fewer things to consider.

While on the subject it might be of interest to some of you those who have not had occasion to look into the historical side of it to hear some of the facts; the earliest efforts that were attended with some little success in this field were those of Marey in 1876 who promulgated the principles upon which blood pressure is measured today. Subsequently Bosch and Potain devised some instruments which came into use but soon were displaced by other instruments much more practical. It was Riva-Rocci who devised the convenient and effectual pneumatic arm band and pump for compressing the brachial artery —the prototype of the present day device—and its values were registered by means of a mercury column in an upright capillary tube graduated in mms of mercury. While the mercury column is still clung to by many as being a gauge of great accuracy the air chamber and dial registering device as typefied in American instruments such as those of Faught, Taylor

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Bros. and others are sufficiently accurate for all practical purposes and are the ones in general use today.

The term blood pressure is synonymous with arterial tension and means the tension of the blood within its containing arteries, it may be high and it may be low and the elements entering thereto are:

The heart output;

The elasticity and tone of the arteries;

The peripheral resistance;

The blood volume.

Since the vis-a-tergo for blood movement is dependent on the heart's contractions, the functional effectiveness of that organ is a factor of the first importance. Osler says:

1st. The heart pump supplies the force;

2nd. The elastic coats of the large arteries store and convert an intermittent into a continuous stream;

3rd. The small arteries act as sluices or taps regulating the control to different parts;

4th. The capillary bed is the irrigating field over which the nutritive fluid is distributed;

5th. The drainage system is represented by the veins and lymph channels.

NORMAL BLOOD PRESSURE AND ITS VARIATIONS IN HEALTH.

The normal systolic blood pressure in adults ranges from 105 to 145 mms of Hg; in females the pressure is about ten less than in males.

The normal diastolic pressure ranges from 25 to 50 lower than the systolic. We are told that a systolic pressure below 100 or above 150, and a pulse pressure below 25 or above 50 may be regarded as abnormal, a diastolic pressure of 110 or over is almost always pathological.

The pressure of the blood in the arterial system is subject to wide variations compatible with health such as time of day position, exercise, excitement, digestion, etc., high temperatures and excessive atmospheric humidity are said to materially lower both the diastolic and systolic pressure. High altitudes cause a lowering of diastolic and systolic pressure.

Old age is usually accompanied by a higher pressure said to be due to loss of fats and general shrinkage of the tissues as well as to less elastic arteries. The posture of the body has

some effect on blood pressure; in the horizontal position systolic pressure is found to be 8 to 10 mms. higher than in the sitting posture; the diastolic pressure is relatively more increased than the systolic in the horizontal thus decreasing pulse results. Moderate exercise increases while fatigue decreases systolic pressure.

After meals there is a moderate rise in systolic pressure. Transient emotional states are not without their influence on blood pressure and it is by this time well known that anxiety, pain and anger are mental conditions which increase by vasoconstriction both systolic and diastolic pressure.

Blood Pressure in Disease.

We must remember that blood pressure, high or low, is not a disease in itself but only a symptom due to disease somewhere, it may be compared to fever for which we have always to find a cause; to state that a patient has a systolic pressure of 220 gives us a fact, but a sterile fact and it at once becomes our duty and is to the interest of our patient to carry our investigations further, and as high or low blood pressure is not a made-to-order symptom we are frequently put to a quite severe test to determine just what is going or has gone wrong and, too, to determine as to whether the disturbance in blood pressure is functional or organic, for we must not lose sight of the fact that it can be either and that applies more especially to an increased blood pressure.

Low Blood Pressure.

A low blood pressure is associated with a variety of conditions and a discussion of the causes must include the different parts of the circulation, weakness of the myocardium, a dilated heart with its diminished driving power is always associated with a low tension. The acute infections, typhoid fever and pneumonia, are also causes of low pressure. In typhoid fever and a low pressure should cause no great amount of concern and indeed it might be beneficial in cases of hemorrhage; a doctor always notes with concern a pulse rate which increases when a systolic pressure progressively lowers in cases of pneumonia.

The elasticity of the blood vessels has an important bearing on the maintenance of blood pressure and of diastolic pressure particularly, and while it is generally supposed that rigid ar-

teries—arterio-sclerosis—is always attended with a high pressure it is possible for the contrary to be the case for myocardial disease may have progressed so far as to make it impossible for the heart to do its work against the resistance offered by the rigid arteries.

The veins by holding large quantities of blood thereby decreasing the amount of material with which the heart and arteries can work, is frequently a factor in the production of hypotension.

BLOOD

Alterations in the blood, both as to amount and normal constituents, may be responsible for a lowered blood pressure as seen in cases of sudden and severe hemorrhage and anemia, this action probably due to a lack of efficiency in the heart muscle. Other conditions that may be mentioned as associated with a lowered blood pressure are tuberculosis, shock, acidosis and under feeding and in cases of suspected tuberculosis a law blood pressure is significant and the case should be kept under observation until the contrary has been demonstrated. A fall in blood pressure frequently takes place during the administration of anesthetics and such an occurrence should be promptly detected and as promptly treated, usually it is caused by an overdose of the anesthetic.

HIGH BLOOD PRESSURE.

Owing to the complexity as well as the uncertainty of the problem of assigning definite causes in all cases of high blood pressure, I have elected to touch upon the wide variety of factors that are justly or unjustly held responsible in the causation of that condition. We can not lay too much stress upon the efforts one puts forth in meeting the vicissitudes of life as an etiological factor in diseases of the heart and arteries. It is quite popular at this time as well as correct to charge to overwork and long hours the condition which we have under discussion, but it must not be forgotten that frequently recreation indulged in after business hours or the indulgence of some habit during or after business hours, or the lack of physiological rest after physiological exertion frequently is responsible for the disease a man may have. Overeating is probably one of the most frequent causes of high blood pressure. A habitual alimentary

overindulgence causes a congestion of all viscera, taxes one's capacity for the digestion of proteins which undergo putrefactive processes and causes an intestinal toxemia; if this overindulgence is persisted in the toxic by-products, by their irritation of the intima of vessels and by irritation of the vaso-motor center, will do damage impossible of repair. I think it is safe to say that in many of these cases aggravated symptoms and even etiology bear a close relationship to the "hog-killing time."

The relations of hypertension to cardiac disease, arterio-sclerosis and nephritis, so-called cardio-vascular-renal disease, render it difficult to consider these diseases as separate and distinct condition. Hypertension is a sign common to all and is best considered in its relation to them as a group.

So common are the cardiac difficulties in many cases of high blood pressure that the presence of hypertension or its role in the drama is overlooked and the condition is diagnosed as cardiac disease, angina-pectoris, myocarditis, etc., and the blood pressure is not even suspected. If arterial resistance is of a grade that the heart can overcome a hypertrophy of the left ventricle will result, and if the degree of that resistance is extreme the left ventricle will not only hypertrophy but will dilate, murmurs, disturbed rythm and distress will develop. With a slowing of the circulation the blood becomes charged with CO^2, which produces an asphyxia of the centers of the medulla which in turn produces a vaso-constriction.

Blood pressure examinations in aortic insufficiency show a constantly high pulse pressure.

A constant blood pressure of 170 mms is very suggestive of renal disease, generally a chronic instertitial nephritis even though there is an absence of albumen and of casts in the urine and an excess of the night urine over the day output and a large twenty-four-hour quantity of pale low gravity secretion is the typical picture. In acute primary nephritis and in nephritis secondary to some of the acute infections—scarlet fever, for instance—there usually is a marked rise in blood pressure. Cases of transient albumenuria with or without casts should be kept under observation and the blood pressure and urine frequently examined.

The association of chronic renal disease and permanent hypertension leading to hypertrophy of the heart, to the eventual de-

velopment of arterio-sclerosis terminating frequently in myocardial insufficiency, has been and is such a commonplace of clinical and pathological observation that it is difficult to say whether the disease is primarily renal with the circulatory condition secondary thereto, or vice versa. The arterial hypertension of cardio-vascular-renal disease is the chief cause of the eye ground phenomena so frequently observed in these conditions and an albumenuris retinitis associated with high blood pressure is often the first indication of the underlying condition.

A large life insurance company in this country found that of the medical impairments found together with high arterial tension below and above the ages of forty more than seventy-five per cent are cardio-vascular.

In arterio-sclerosis a rise in blood pressure is the rule, though there are some who believe that a rise in blood pressure occurs only in those individuals who have an involvement of their aortae and splanchnic vessels, and indeed many cases of peripheral sclerosis, for instance, of radial and temporal arteries, are unaccompanied by hypertension though this might be caused by a heart that is in decompensation.

Focal infections are frequently the cause of high pressures and instances are not lacking in which a high pressure was promptly reduced by the elimination of foci of pus organisms in the tonsil or in the mouth at the root of the teeth.

Syphilis is not believed to play an important part in the production of hypertension; in the white race the positive Wasserman reactions in cardio-vascular cases is 3½ per cent while the percentage is 8.8% per cent in all other white cases.

Janeway regards the toxins of alcohol, tobacco, tea and coffee as of doubtful importance in the production of hypertension.

Blood pressure in anesthesia and surgery. Blood pressure examinations are of the greatest importance for judging the condition of the patient during the administration of anesthetics and during surgical operations. Early warning of impending shock is obtained which enables the institution of prompt treatment at a time most likely to lead to the recovery of the patient. Changes in pressure will result from obstruction to respiration, overdose of anesthetic, from unusual temperature in the operating room, and from hemorrhage and

operative manipulation. A falling pressure with an increasing pulse rate is a certain indication of impending shock.

Glandular Dysfunction.

Before concluding I desire to say that the endocrine glands should be given consideration in the study of hypertension in not a few of these cases of functional hypertension the disorder is caused by a glandular dysfunction, adrenal irritability is said to be a prolific cause of hypertension, and in the hypertension which is associated with the menopause, probably the most frequent functional hypertension one meets with, I think it is safe to say that the ovary is at fault. I believe that the consideration of these cases from this standpoint will help us find the way to a successful therapy.

Hyperpyesia, Nervous Hypertension or the Hypertension of Clifford Albutt.

Under this head falls a number of cases which show no evidences of heart, renal or vascular disease and neither do these cases fit well into groups other than these. The causes of the heightened blood pressure in those is not yet known. In the course of time it is followed by cardiac hyperthrophy and by arterio-sclerosis, it is essentially chronic in its course, the BP is consistently high being 180 or above, it is usually found in business men who work hard and are inveterate smokers, those who work increasingly without relaxation and as I have said above the end results are cardiac failure or arterial accident, cerebral or coronary, though some of these cases stand remarkably high pressures and go in life in apparent comfort and robust health.

Treatment.

Evidently this must vary with the cause which must be determined before intelligent therapy can be carried out. In the treatment of both hypertension and hypotension it is necessary to initiate a rigid regulation of diet, habits, drinking, sleeping and working which will vary somewhat with the cause. In the cases of acute infectious diseases means should be instituted directed to elimination and to the support of the circulation.

The diet should be anti-putrefactive; protein foods such as meats, fish, milk, cheese, beans and peas being entirely elimin-

ated or greatly reduced in amount. Fruits and green vegetables should constitute the diet and where pressure is very high absolute starvation continuing for several days is of great value.

The majority of these patients are hearty eaters and it is in these that a regulation of diet is productive of the best results and if they are put on a vegetarian diet improvement is sure to set in: many cases do well on a Karel diet, a glass of milk every four hours during the day and continued for two or three days at frequent intervals.

As abnormal fermentations and putrefaction in the bowel undoubtedly cause blood pressure to rise and keep it so, active treatment should begin with a thorough cleansing of the intestinal tract by purgation and should be repeated once per week, the drug holding first place in my opinion is mercury followed by a saline.

Overindulgence in the use of alcohol, tobacco, tea and coffee should be regulated.

A man with hypertension should be warned to make his life less strenuous, he should be advised against taking on new enterprises that entail mental stress, he should make his holidays more frequent and longer, he should exercise, walking or horseback riding are not too strenuous and are to be recommended. Anything that promotes perspiration or improves the circulation in the skin and muscles helps to lower blood pressure; warm baths are helpful in lowering blood pressure and help the kidneys.

Salt and water restriction will be found valuable in controlling pressure in some cases.

Baths, plain and medicated, and the high frequency current have their advocates in the treatment of high blood pressure.

Venesection has proven of some value in cases where the blood pressure shoots above its accustomed figure and produces a sense of fullness and headache which is a sign of impending danger, a warning of cerebral accident.

There is no doubt that the dilators are valuable agents in reducing blood pressure and the drugs of choice are the nitrites. My preference is for sodium nitrite given in moderate doses three times daily. Nitroglycerine is of value if given

in doses sufficiently large and often enough to produce effect or until it produces a headache. In cases where there is insomnia chloral in five grain doses every four hours works well; there is no doubt that the sleep it produces had a favorable effect on the hypertension. The iodides have a traditional usage but I am inclined to question their efficacy save in luetic cases; in non-luetic cases my feeling is that the damage is done and it is too late to give them.

W. D. Robinson of Philadelphia reports the use of pilocarpine in hypertension with cardiac hypertrophy with gratifying results. He gives 1/30 grain in a glassful of water after meals increasing or decreasing the dose as required.

In cases where symptoms of cardiac failure are evident I do not hesitate to give digitalis, and if my patient is sleepless and his respiration is embarressed I give morphine.

Stoll has outlined a series of donts for patients with hypertensive cardiovascular disease which are of distinct service in keeping the etiology and prevention of these conditions in mind. They follow:

1. Don't tell the patient with moderate hypertension, few symptoms and whose kidneys are functioning well, to stop eating meat or to go on a milk diet.

2. Don't tell him to immediately give up his business; try to readjust his life so that unnecessary cardio-vascular strain is reduced to a minimum.

3. Don't tell him his kidneys are all right just because his urine exhibits neither albumin nor casts.

4. Don't miss the significance of a nocturnal polyuria and a persistently low specific gravity.

5. Don't give nitroglycerine tablets to your patients the moment you discover that he has hypertension. Perhaps he requires a high pressure to get the blood through his small inelastic vessels.

6. Don't be satisfied with the systolic pressure—the diastolic is often of more significance.

7. Don't attribute insomnia and headache in the middle aged women to "the change." Take her blood pressure and examine her eye grounds.

8. Don't make a diagnosis of neurasthenia till after a blood pressure estimation and a Wasserman test has been made. It

may save subsequent embarassment and even be of advantage to the patient.

9. Don't think you are doing your whole duty to your pregnant patient when you have examined her urine. She may have hypertension but no albumin today and eclampsia next week.

10. Don't consider hypertension solely a condition of middle life; it occasionally is present in childhood.

11. Don't forget the old man's enlarged prostate. It may be the cause of the nephritic syndrome.

12. Don't hesitate to give digitalis when symptoms of cardiac failure are evident. It will not raise the blood pressure.

13. Don't wait until the patient is water logged and the heart dilated before suspecting a failing myocardium.

14. Don't deny your sleepless, gasping patient, whose course is nearly run, the relief that only morphine will give.

15. Don't make a prognosis solely on the blood pressure or the PST test. Each tells but part of the story.

16. Don't overlook the fact that cardiovascular disease is to a certain degree a familiar condition sometimes present in several generations; nor neglect to explain the importance of a yearly blood pressure estimation of all members of the family.

17. Don't exclude syphilis, especially a parental infection, as the cause of hypertension solely because the Wasserman is negative. Study the family history, examine the brothers and sisters, and your patient's children for signs of hereditary syphilis.

18. Don't fancy that the management of hypertension consists in watching a column of mercury or that success is measured in mms.

IN CONCLUSION.

Let me emphasize the fact that low and high blood pressure are symptoms and not diseases, their presense suggests the need for careful study to determine the underlying cause and on this proper therapy must be based.

That blood pressure may be of two distinct types, viz.: functional or organic.

Ductless glandular dysfunction is probably responsible for a large number of cases of abnormal blood pressure and their

consideration from this standpoint may be the beginning of a successful therapy. .

The fact should not be lost sight of that a high blood pressure is necessary in some cases, for instance in cases of chronic insterstitial nephritis.

DISCUSSION.

Dr. John T. Halsey (New Orleans): There was one thing in that paper, an expression of a view which is so frequently put forward, which I am so convinced is incorrect, and upon which it is so important that we should think right, that I will discuss that one point. This was the statement that the adrenals have anything to do with high blood pressure. By biologic methods it is possible to determine the amount of adrenalin present in the blood with such extreme accuracy and delicacy that adrenalin in dilutions way up in the tens of millions can be recognized and determined. There is not one particle of evidence, that will stand investigation, to show that the adrenalin content of the blood is increased in cases of hypertension. As a matter of fact, if there is enough adrenalin in the blood to produce a rise of blood pressure there is more than enough to produce one of its other effects, namely, the inhibition of peristalsis with a resulting paralysis of the intestinal movements. I speak thus because of the propaganda which the "endocronies," as I call them, are carrying on in an endeavor to persuade doctors that a lot of things are true which are absolutely false and which they know to be false. I hope Dr. Richie will excuse me for being so positive about this matter. It is not pleasant to thus disagree with him about something which he has said.

Dr. John B. Elliott (New Orleans): About a year ago I went over our records and found that in 280 cases the blood pressure was 170 systolic. Of these cases 23 per cent gave positive blood Wassermann; about 8 per cent showed clinical symptoms. The others were due almost entirely to over-eating. In other words, I believe firmly that over-eating causes a vast majority of these cases. A man who eats three large meals a day and does not walk will eventually have a high blood pressure.

Another point I want to bring out is the prognosis. To people who have a high diastolic pressure, over 120, we offer a short duration of life. Very few of them live over five years.

Another point about the treatment: It is a question of the salt. Cut out the salt, and cut down the water. Water is the worst thing for high blood pressure. With the ordinary patient do not change his diet, but cut his water down one-third and cut the salt down and almost immediately the blood pressure will fall. Another thing about treatment is to get these men to promise you to go home and rest an hour in the middle of the day. That will do more good than all the medicine in the world. I have watched one case for twenty years, and he has had a blood pressure of over 200 for fifteen years. I persuaded him to take a rest in the middle of the day, cut out the water and the salt, and it fell to 165 and lower. They can live for years and years comfortably by cutting down the food and water and salt and taking rest in the middle of the day.

Dr. Allan Eustis (New Orleans): Just a word of caution in regard to the prevalent idea of regarding every case of systolic pressure of 200 or over as high blood pressure. In many of these cases this is a compensatory blood pressure, and the kidneys work better with a blood pressure of 200 to 220. I think the recent work of Richards has certainly brought out that contention. He shows that

the function of the kidneys is absolutely dependent on the pressure behind the arterial flow. Instead of attempting to lower this blood pressure in arterio-sclerosis, look at it as a beneficent act and keep it at that point. Instead of giving amyl nitrite, as we have seen again and again, attempt to keep it from 200 to 220, but do not let it get up to 240. Look at 200 as a compensatory factor.

Dr. A. A. Herold (Shreveport): I would just like to say a word about what Dr. Elliott said in regard to restricting water. These cases very often complain of intense thirst, and that is probably a factor in increasing the pressure. If you will do as the doctor says and restrict salt and also sweets, you will find they can get along with considerably less water. In other words, anything which will minimize the thirst is a very valuable aid.

Dr. D. J. McAnn (Atkins, La.): I heartily agree with everything Dr. Elliott said, especially about the importance of over-eating. Over-eating is the greatest curse of most people in the South. In regard to restricting salt, for every teaspoon of salt that a man takes into his stomach it requires a quart of water, and therefore if you cut down the salt content you will reduce their thirst a great deal. In regard to eating sugars and starches, a person who has a high blood pressure should be put on a green vegetable or diabetic diet.

Dr. H. Guy Riche (closing): I must say that I agree with Dr. Eustis in saying that high blood pressure is necessary in some cases. It is a physiologic necessity in all cases where certain structural changes have taken place in the cardio-vascular system and in diseases of the circulatory system involving the kidney.

I also agree with Dr. Elliott when he says that a high diastolic must be viewed with concern and indeed high diastolics disquiet me very much more than do high systolics. It takes a good heart to maintain a high systolic pressure while a high diastolic strains an artery often diseased beyond hope.

Replying to Dr. Halsey, I would like to say that I have a great deal of respect for his opinion on this as for his opinion on any medical subject and he no doubt does a great deal of work in this line; but I also have a great deal of respect for the opinion of some of the authorities that I have consulted in the preparation of my paper and we are certainly taught that adrenalin raises blood pressure.

I thank these gentlemen who have discussed my paper, adding interest to a subject that is, to my mind, an important one.

TREATMENT OF TYPHOID FEVER.*

By GEO. S. BEL, M.D.

Preventive measures against typhoid comprise a pure water supply, the proper care of the excreta from those suffering from the disease, precautions against food contamination, protection against flies, isolation of the patient, the disinfection of all articles used in the sick room or likely to be soiled by the patient, (because it is through these the soil and water become polluted and complete the chain of transmission), the constant care on the part of the physician, nurse and attendants to avoid their contracting the disease through handling or becoming me-

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chanical carriers. During epidemics, all drinking water and milk in the community should be boiled and no green vegetables or shellfish should be eaten unless the source is known to be above suspicion, and these should be handled also by someone who is above suspicion. In every community where typhoid breaks out, it is the duty of the physician to advocate, and the duty of the health authorities to enforce typhoid vaccination. It is now well established that typhoid is a certain prevention against the disease for a period of two or more years. One should not hesitate to vaccinate all the members of a family in which typhoid has appeared; the vaccination can do no harm and gives only temporary inconvenience. Serum sickness and anaphylaxis cannot occur following the administration of vaccine for reasons too well known to mention. Furthermore, the doctor, nurse, orderly and other attendants upon the sick should promptly be vaccinated. Not only is this a precautionary measure against the disease for those vaccinated, but it is a sure prevention against their becoming "mechanical carriers," and, in this way, spreading the disease to others. This is explained on the theory that they are rendered immune and their immunity destroys the viability of the specific micro-organism which may, from time to time, enter the various external avenues of infection. The vaccine used is either without or in conjunction with typhoid antitoxin.

The latter is said by some authorities to be preferable because it gives rise to less discomfort on the part of the recipient and it assures a longer immunity. The vaccine in this form is known as a sensitized product.

Treatment of typhoid fever. The general management of the typhoid patient may be summarized under several heads, viz: General management, diet, hydrotherapy, chemotherapy, vaccine and serum therapy, and treatment of individual special symptoms.

The general management of the typhoid fever patient includes, primarily, a well ventilated room with good light where every care is used to preclude the transmission of the specific micro-organism. If the patient is financially able, he should be immediately transferred to an institution. A skillful and intelligent nurse is essential in the care of the patient and in preventing the spread of contagion. She should be carefully in-

structed to properly dispose of the excreta and care for all utensils and bed clothing used by the patient. When circumstances do not permit of a trained nurse in attendance, detailed instructions should be written out for whomsoever has charge of the case.

The nurse or other attendant should be instructed regarding the symptoms of hemorrhage and perforation in order that this might be immediately reported to the physician.

Without delay, the physician should have a blood picture of the case and repeat this every few days since, by this procedure, he can frequently anticipate serious complications such as perforation and peritonitis, as this is always preceded by a change in the blood count—sometimes forty-eight hours prior to the occurrence. Leukopenia is the characteristic blood change for typhoid and Neutorphilic Leukocytosis which is not uncommon in the course of typhoid fever is pathognomonic of a secondary pyogenic infection. This in itself warns the physician that ulcerations have occurred in the intestinal tract. The patient should be provided with a comfortable bed and a rubber sheet should be placed upon the mattress to guard against soiling. It is imperative that the patient remain in bed throughout the entire illness and be disturbed as little as possible. A certain amount of daily movement of the patient in the bed is necessary to avoid bed sores and is to be accomplished by careful attention to the patient's skin, bearing in mind that the patient should use the urinal and bed pan with the least possible disturbance. Attention to the care of the teeth and mouth should be diligently accorded by the nurse or attendant. It is important to have the lower bowel move daily and, if this does not occur, an enema should be given.

The diet in typhoid fever should be liberal, including, of course, easily assimilated foods given at regular intervals. While in former days, it was thought advisable to feed the typhoid fever patient on nothing but a liquid diet, this has now been established as erroneous. The greatest variety of foodstuffs is now given provided, of course, it is assimilable and, since the institution of the present day less retricted diet, we seldom see the emaciation, weakness and other untoward signs and symptoms. Furthermore, the liberal diet has certainly lowered the mortality. The liberal feeding maintains the loss

of weight and general tone of the system which factor increases the resistance, and, thereby lessens the toxaemia and favors recovery. Since typhoid fever requires several weeks to run its course, and there is a continued loss of body protein as a consequence, it is necessary to nourish well and to administer food which has approximately the equivalent of 2,500 to 3,000 calories daily.

While milk is a useful article of food, we should not depend upon it alone as was formerly done, because it requires too large a quantity for supplying the needed calories per day, and, if such a quantity were given, it might cause tympanites and aversion to it by the patient. Milk, however, in combination with other articles of food such as cream, ice cream, cocoa, chocolate, strained soup, eggs, (soft boiled, raw or poached) malted milk, sugar, soft cereals, oatmeal, hominy, gruels, jellies, jams, egg nogg, bread with butter, milk toast without crust, crackers, mashed and baked potatoes, custard, tapioca, light pudding, cornstarch, strained vegetable soup is the diet of choice.

In selecting a diet, one must remember:

(1) That the carbohydrates such as gruels, oatmeal, cream of wheat, hominy, crackers, bread, toast, mashed and baked potatoes, milk, sugar or lactose (lactose has the same food value as cane sugar and has the advantage of not being so sweet; therefore, it can be used in larger quantities and can be advantageously taken in milk, lemonade, ice cream, custard and on cereals) should furnish half or more of the calories and lessen nitrogenous waste.

(2) That protein destruction in typhoid fever is very high and this can be avoided, to a great extent, by the selection of the proper food, and always bearing in mind that the amount of protein in the diet should average between sixty and seventy grams. The proteins are supplied by milk, cream, eggs, beef juices, etc. Fats have a high caloric value and are of material aid, being mostly supplied by cream, butter and cocoa.

In selecting a diet, it must be remembered that the vitamines are important and should be considered; here again, milk is essential as it contains both vitamines, water-soluble B, and Fat-soluble A, and the fruit juices—especially orange

juice, lemon juice, tomato juice and vegetable juices, etc., are beneficial.

The physician must bear in mind the possibility of overfeeding and causing digestive disturbance or improper feeding, in some cases producing tympanites and diarrhea—(tympanites may be due to an excess of lactose and diarrhea to an excess of cream in the liberal diet).

Water should be given freely at definite intervals and in *large amounts,* as it dilutes the toxins and favors elimination. The writer prefers pure plain water to albumin water, lemonade, etc., which usually dulls the appetite and lessens the desire for food.

It may be well to mention here that certain complications prevent carrying out the above method of feeding. Hemorrhage from the intestine and perforation of the bowel call for prompt withdrawal of all food.

In order to stimulate the patient's appetite, it is necessary to have a daily variation in the diet and food should be selected for each individual patient; therefore, there is no need for a stipulated diet.

Hydrotherapy is the only logical febrifuge and affords the best means in the reduction and control of temperature and prevents the development of severe nervous symptoms. It not only reduces temperature but lowers the mortality; toxemia is diminished, and, consequently, nervous and digestive symptoms are palliated, cardiac and pulmonary complications are lessened. Renal function is stimulated, favoring the elimination of toxins by the kidneys, cleaning the skin, and the cutaneous circulation is improved which makes the occurrence of bed sores less frequent.

Contraindications to the use of the active hydrotherapeutic measures are hemorrhage, perforation or peritonitis, great prostration and weakness, especially in extreme age and advanced arteriosclerosis and when the bath causes intense cyanosis and syncope or much dyspnoea. Pregnancy, menstruation, mild forms of nephritis, bronchitis and pneumonia are no contraindications.

Methods: Whenever practicable, the cold bath is always preferable and the sooner this plan of treatment is instituted,

the better will be the result. The technique of procedure may be described as follows:

To carry out the method properly, at least two attendants are necessary because the patient must be lifted into the tub which is placed at the bedside, this being preferable to having the patient's bed moved to or near the bath room. The tub should be of sufficient length and width to accommodate the patient and should be filled for use to three-fourths of its depth with water in order to cover the patient to the neck; the head should be supported upon a rubber air pillow attached to the edge of the tub and he will be made more comfortable by placing a rubber air cushion beneath the buttocks The patient's nightshirt or gown is removed, a napkin placed over the genitals or the whole body covered with a sheet under which he is bathed. He should now be given a stimulant such as brandy, whiskey or hot, black coffee, wiped dry—if perspiring—and a small piece of cotton placed in the ears after which he is ready to be transferred to the bath by two attendants, one grasping him under the shoulder resting his head on the attendant's arm, and the other just below the knees; the patient is then asked to stiffen himself out. This should be done as gently as possible.

As soon as the patient is placed in the tub, brisk friction of the whole body except the abdomen is a very important part of the treatment. Cold compresses, frequently changed, should be applied to the forehead.

While the patient is in the bath, the bed should be prepared, for his return by placing on it a double blanket and over this a warm, dry sheet, hot water bottles being placed at the foot of the bed. The patient should now be lifted from the tub into the bed, the warm, dry sheet folded over him—a fold being passed between each arm and the side of the body and between the legs in order that the skin surfaces shall not come in contact. The patient should be thoroughly dried by being rubbed outside or over the sheet, and the blanket then wrapped around him. At the end of ten minutes, he should be taken out of the sheet, rubbed dry and gown and bed clothing replaced. The reaction is generally prompt. Protracted shivering during and following a bath and many untoward symp-

toms point to some defect either in the duration, temperature or faulty application of friction.

In the strict Brand method, the patient is immediately placed in water not less than 65 degrees F. and not more than 70 degrees F., and repeated every three hours as long as the rectal temperature is above 102.5 degrees F. and the duration of the bath is fifteen to twenty minutes. Brand's original method has met with slight modifications and the advocates of the modified method favor beginning the baths with a temperature of 80 degrees F. to 85 degrees F., and, in some selected cases at 70 degrees F.; the bath is continued for fifteen to twenty minutes. It is well to administer the first bath at a temperature of 85 degrees F. which allows the patient's reactive powers to be measured and the subsequent baths determined accordingly. If possible, the physician should be present during the first bath to guard against the possibility of shock, to encourage the patient, and to see that the good effects are not lessened by too early termination.

Cold or wet pack: In private practice—and especially among the poorer classes who cannot secure the proper help and nurses—the wet pack may be used instead of the tub bath. While it does not have the full effect of the tub bath, it is nevertheless, very beneficial. A large sheet is wrung out of cold water ranging from 50 to 54 degrees F., the patient quickly wrapped into the sheet and allowed to remain in this packing according to the temperature and reaction. The surface should be rubbed briskly through the sheet, and, from time to time, cold water is sprinkled over the sheet.

Cold sponging may be utilized when baths are refused or cannot be employed. The entire body is rubbed briskly—*except* the *abdomen*—with cold water (sometimes ice water). Care should be exercised to keep the portions of the body not being sponged covered.

Special attention should be accorded the back for here the tissues retain heat longest.

The bed bath or slush is employed when, for any reason, the tub bath is impracticable. The patient is stripped, a large rubber sheet placed under him and blankets rolled and placed under the edge of the sheet and pushed up in order to form a sort of wall or trough. Water is poured into the trough and

the patient given a bath and treated in exactly the same manner as when a tub bath is employed.

Drugs in the treatment of uncomplicated cases of typhoid fever are of little value, and the so-called "intestinal antiseptics" have been shelved. Urotropin (hexamethylenetetramin) 7½ grains three or four times daily—especially in Bacilluria—has been of use. *Remember alkalis should not be administered at the same time that urothropin is given.*

In combating the toxemia, *water* is the most helpful remedy at our command. Fruit juices and sodium citrate, 10 or 15 grains every three hours would be of benefit.

Massage: By carefully massaging the lower extremities during the course of the fever, material benefit will be derived as these patients are capable of walking earlier than is usual.

Vaccine and serum therapy: This form of treatment of typhoid fever, while theoretically correct, has not yet proved of practical value. Vaccine in the form of sensitized product, according to Gay, has proved of worth in the treatment of typhoid. He claims that it lessens the severity of the infection and, in some cases, modifies the course of the disease.

Sensitized vaccine may be of value when administered early in the disease or during convalescence in that it may shorten the duration, prevent relapses and the more common sequelae, such as cholecystitis, periostitis, and other foci of typhoid infection. Furthermore, it may preclude the possibility of a recovered case becoming a "carrier." I would not advise, however, the giving of vaccine after the first week or during the third week of the disease. In this connection, it must be borne in mind that the administration of vaccine is the addition of specific poison to a system already burdened with this toxin which, during the height of the disease, is often all the body can withstand. The vaccine may be given intravenously as well as subcutaneously. It is well, therefore, to remember that patients react differently and, in administering vaccine, it is best to begin with a small dose, gradually increasing until the limit of tolerance is reached. The usual first small dose is about one hundred million killed bacilli, repeated at intervals of three days until three to five doses are given. Vaccine as a preventive has been definitely established.

Specific serum for the cure of Typhoid has not proved of any definite value. Theoretically, it should establish a lytic passive immunity, but such has not proved to be the case. Typhoid serum is rich in the antibody that destroys these specific microorganisms which, early in the disease, are freely multiplying in the circulation; therefore, their destruction ought to be occasioned in a short time by the intravenous injection of specific serum. In the test tube, the destruction of the bacilli is rapid and perfect, but in vivo, there is apparently something which prevents the reaction. The explanation on theoretical grounds is that anti-complimentary substances interfere.

Treatment of individual special symptoms: Constipation, in my experience, is by far more frequent than diarrhea. In the treatment of this condition, one must avoid drugs that increase peristalsis—or subsequently lead to a more persistent constipation. If the case is seen early, it is first necessary to thoroughly evacuate the bowel (for this purpose, I find *castor oil* the most efficacious). Following this treatment, the institution of a liberal diet—particularly rich in cream—will usually regulate the bowels. When constipation persists, the administration of mineral oil or simple enema will be beneficial.

Diarrhea should be corrected by proper dietary, for example, the withdrawal of cream, fruit juices, jellies, and, if this method is not successful, I would advocate the use of bismuth, chalk mixture and, in persistent cases, opium in some form in very small doses.

Tympanites: This usually can be overcome by regulating the diet. All food which tends to form gas should be diminished or withdrawn—(sugars, jellies, cooked fruit, etc., being in this class). Daily bowel evacuation usually prevents the occurrence of tympanites. Sometimes immediate relief from distressing distention is to be had by gently introducing a rubber catheter. The application of turpentine stupes is sometimes of service; turpentine enemas are of value in certain cases (half to one ounce of turpentine to one pint of water). Eserin and pituitrin are contra-indicated as they invariably increase peristalsis.

Hemorrhage: For this condition, the first essential is *absolute rest* and the withdrawal of all foods for at least twenty-four hours. Small quantities of water to quench the thirst may

be given. In order to insure rest and, at the same time quiet the bowel, the writer advocates small doses of morphine, not sufficient, however, to narcotize the patient or obscure the symptoms of perforation. The various agents that increase the coagulability of the blood may be given (such as horse serum, hemostatic serum and other thromboplastic agents). Transfusion of normal saline (or human blood properly typed) is desirable in critical cases where there has been a large loss of blood as indicated by the rapid fall in blood pressure.

Symptoms of perforation are abrupt, acute, sharp abdominal pain—frequently paroxysmal in character—but sometimes the pain is constant. Rapid increase in leukocytes, tenderness on pressure with rigidity, pulse and respiration usually increased. The writer has found the blood pressure suddenly increased to 30—40 mm. one hour after the symptoms of perforation occurred in two cases which subsequently proved to be perforation. During the course of typhoid fever, any acute abdominal pain should be regarded as possible perforation.

The *treatment* of perforation is immediate operative intervention which should be accomplished, if possible, preferably under local anaesthesia.

Convalescence: The patient should not be allowed to sit up in bed while the temperature persists even though there are periods of remission. Within 3—5 days after the patient is free of fever, he may sit up for short periods until strength is regained. Daily exercise after this should be gradual and, at first, very limited in amount. Ten days after the fever has entirely left, the patient may be put on a general full diet.

As to prognosis, it is impossible to lay down any special rule, because it depends upon the complications which may arise during the course of the disease. To be specific, we must consider the individual resisting power, the virulence of the organism, the question of intestinal hemorrhage, and secondary infection which gains entrance through the open ulcers in the intestines and through the respiratory tract as a lobular pneumonia.

The average mortality is about eight per cent. Of course, early recognition of the disease and institution of the proper treatment all tend to lower the mortality.

DISCUSSION.

Dr. F. T. Gouaux (Lockport, La.): I would like to ask if typhoid fever can exist without any lesions in the intestines, and if intestinal antiseptics are at all useful in typhoid fever?

Dr. Allan Eustis (New Orleans): We have all enjoyed Dr. Bel's paper and I know of no one better suited to present the subject. The first knowledge I gained of typhoid fever was from him, but during my practice in Southwest Louisiana, I had quite an extensive experience with the disease, and I was struck by the fact that most cases were associated with an intestinal toxemia, and that when this was overcome the symptoms were always milder. In typhoid fever we have lesions not only in Peyers' patches of the terminal ileum but also in the solitary follicles of the cecum, which causes a tendency to stasis in that portion of the intestinal tract at which absorption is greatest. Therefore, we should combat the tendency to intestinal toxemia by low protein and high carbohydrate diet from the start. Dr. Bel in advocating 60 to 70 grams of protein is considerably below that usually given, but in a series of twelve cases in Charity Hospital, the protein intake was as low as 35 to 40 grams, with a corresponding low nitrogen output. These patients all gained weight during the progress of the disease. We must remember that in typhoid fever the patient is at rest and if sufficient carbohydrates and fats are given, the protein needs are very little. Regarding hydrotherapy, I wish to recommend the use of hot foot baths in reducing fever in these cases. I have seen a temperature of 105 reduced to 101 and remain at a low level all night after a good sweat induced by a hot foot bath. Our efforts in the treatment of typhoid fever should be towards lessening the toxemia.

Dr. L. J. Menville (New Orleans): I would like Dr. Bel to discuss hydrotherapy a little more fully. There has been some little discussion relative to the merits and demerits of that treatment for typhoid fever, and I am sure Dr. Bel is sufficiently well posted to clarify this point.

Dr. W. H. Harris (New Orleans): The doctor touched lightly upon vaccines and serum therapy, but it might be of value to add a few words regarding the question of serum therapy. We know that a satisfactory antitoxin has not been secured for typhoid. On the other hand, in diphtheria, the results have been wonderful; likewise in the case of tetanus. These organisms, B diphtheria and B. tetani, have an ectoscine, but in the instance of the typhoid bacillus, it is an endotoxin, and the consequence is that the results obtained are not nearly so brilliant. That accounts for the reason why serum therapy has failed in typhoid fever. As regards vaccine therapy, it has not completely failed, but the results have not been brilliant. The vaccines, of course, in these circumstances usually are put into a system where there is already a bacteremia, and we get the same result as we do in vaccines for various septicemias, wherein they do not do much good. The prophylactic powers of typhoid vaccine is too well known to warrant any discussion.

Dr. C. M. Horton (Franklin, La.): I am much interested in the diet, particularly in regard to milk. In the last few years I have not been treating as much typhoid as formerly, because I really believe these cases are much better handled in institutions and when they are able to pay for institutional treatment I always refer them to some such place. So my observation has been rather limited. However, I have come to this conclusion, that the use of sweet milk seems to me to produce tympanites, a condition which I have had a great deal of difficulty in controlling. However, if milk is not used, I am not able to keep up the proper nourishment of the patient, and when the patient gets up I feel that I have not handled the case

properly. I would like to ask Dr. Bel if there is anything that we can give, instead of sweet milk, that will keep up the nutrition?

Dr. D. J. McAnn: I consider this one of the most valuable papers I have ever heard on the treatment of typhoid fever. The doctor has covered the question from every standpoint and has not left a thing unsaid in regard to the treatment. From an internal medicine standpoint I wish to say that my trip down here has been entirely justified, and I feel I have been fully repaid by listening to this paper.

In regard to serum therapy, I think that serum therapy is a very valuable adjunct in the treatment of typhoid fever. I have treated typhoid fever for the last ten years, and where I gave serum therapy I did not have the amount of hemorrhage that I formerly had. But it should be given continually throughout the period of high temperature. In conclusion I want to thank Dr. Bel for this valuable paper. I believe I voice the sentiments of every internal medicine man here when I thank Dr. Bel for this paper.

Dr. T. E. Wright (Monroe, La.): I commend the paper most heartily. The present-day typhoid fever differs from the typhoid known to our grandmothers, not in virulence, but in treatment. Today they are fed and have abundant water; not so often do we see the dry, cracked tongue, the distended abdomen, the delirium. What the essayist has said about careful, painstaking directions to the nurse and attendants, certainly meets the approval of all good doctors. If I might presume a suggestion, based on thirteen years' experience only, which modesty might permit, I would say that a very valuable feature in the treatment is to vary the diet so that no one article of diet comes oftener than twice in twenty-four hours. This can be done with a little care and some planning. A regular bill-of-fare may be prepared by the physician; each two or two and one-half-hour period to get a certain specified feeding prepared along lines that are directed by the physician, with its caloric value noted,—to the end that each twenty-four-hour period gives a total caloric food intake sufficient to maintain the patient through the most harrowing experience he has ever had. The most substantial compliment to a careful physician comes through the friends of his convalescent typhoid patient, when they say: "You certainly didn't have typhoid fever, and look as well as you do."

Dr. W. A. Dearman (Long Beach, Miss.): Dr. Bel has fully outlined the treatment of typhoid fever in a scientific way, and I only want to warn against the danger of one particular thing, and that is with reference to instructions to the nurse or attendants in permitting the patient from suddenly turning himself in bed, especially the ones that are profoundly toxic, asthenic and in the latter weeks of the disease. I have had to come under my observation in the past ten years three cases of perforation due, in my opinion, to this cause. I could never see the rationale of administering vaccines in the treatment of typhoid fever. Recovery depends principally upon the development of agglutinins, and the development of agglutinins depend upon bacteriolysis and setting free the endotoxin of the typhoid bacillus. The individual develops his own immunity.

No serum has proven satisfactory in the treatment of the disease. Intestinal antiseptics have had their day and have been shelved. The treatment as Dr. Bel has so scientifically and practically outlined is safe, simple and sane.

THE UNUSUAL CHILD.

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The nation's return to normalcy, together with the social adjustments of the people therein, has brought forth a greater desire to conserve. This applies to a large extent to medicine, which will be expected to safeguard the energies of the coming men and women of future times, in the person of the newly born, the child and young adult. This conservation, instructive and educational must be along the lines of proper living the daily rule of life, in a healthy and sane manner, in order that there may be a complete social adjustment of the individual. Alas, even from this class will be those who fail to adjust themselves, and who will be classified as unusual or bad children. The type which early in life is brought to the physician with the history of not fitting in with the home surroundings, school atmosphere, or playmates as other children do, whether there be one or many in the family, is a case in point. Another instance is the fussy child, who always appears headed in the wrong direction, is a bane to parent, neighbor and civic officials, who in a number of instances will become anti-social following a comparatively few years of existence. These in turn will be placed in the ranks of the juvenile delinquents, criminals, white slave cadet, lady-friend type, prostitutes, moral imbeciles, narcotic habitues, recidivist, panhandler, and young adult psychoses. It is concerning all of these that I shall speak of today.

Individuals differ; some fail where others succeed under practically the same circumstances and conditions. Why? Intelligence is the capacity of an individual to adjust his thinking to new requirements. It is a general adaptability to new problems and conditions of life. Through a correlation of special mechanisms we have as a result human behaviour. Any eccentric deviation from, or inadequacy of this behaviour leads to criticism of the individual. Should these persist to an extreme degree the person will become asocial to a greater or less extent.

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The majority of these cases result from the union of the physically unfit, from improper mating and from excesses of various sorts. In other cases the offspring may be classed as unexplainable "step-children" of nature. In a number of cases we must not invalidate the Hypothesis of Lues. Included in these is the constitutional inferior, who may be recognized by the chronic, abnormal, social and mental reaction to the ordinary conditions of life, and who cannot be classified in any groups of the psychoses, neuroses or mental deficients. This individual generally shows physical anomalies, either structural or functional. This is the class many of us met while serving in the service during the late war as Neuropsychiatric examiners, or on Draft Boards. You all recall the "misery in the head" and "pain in the back" type still encountered in our own locality, in large numbers. Another type is the constitutional psychopathic inferior, who in addition, has an inadequate personality, with certain characteristics, namely: moral deficiency, sexual psychopathy, pathological lying, who may be also a vagabond or nomad. To these are sometimes added moral stigmata, i. e., inferior reactions to temptations, want of foresight as to consequences, feeble power of concentration, attention and remorse. There may be still further engrafted upon these the emotional inferiors paranoid personalities, emotional instabilities, the very suggestive type, easily fatigued, selfish, irritable, with fits of temper without adequate cause, cowardice, laziness, with marked indifference and mild depressions.

The mental defective we all know too well. They, too, have a place in this enumeration. As to these I wish to state in passing that they require immediate attention, rather than neglect, a better understanding rather than abuse, and a closer friendship within their own sphere, rather than isolation.

It will not be out of place here to quote the data issued by the National Committee of Mutual Hygiene concerning the examinations made by the Neuro-Psychiatrists during the late war. This data only includes the cases examined by that personnel, when the entire force was in the field, and does not include cases which possibly escaped the medical examiner not always in sympathy with the necessities for such examinations. This occurred, of course, as a result of the want of proper understanding and better knowledge of the subject on the part of

the examiner. To May 1, 1919, there were 72,323 cases of nervous and mental disorders identified by Neuro-Psychiatrists. Of this number 22,741 were mental defectives. Should we add those rejected at local boards the total would reach 26,545. In the A. E. F. through one base hospital alone passed 1,475 on their return to the States. The above speaks for itself, and requires no further elaboration except to state that at one time these were children, and are today problems in preventive medicine for the physician, and Veterans' Bureau, and social conditions for some employer or parent. No doubt many of the 75% of the war marriages terminating as marital maladjustments are of this class. Quite recently there has sprung up in the schools of distant cities, cliques known as Shifters, who recognize each other by the wearing of a certain emblem, a hand grasp and password. This has resulted in the unwholesome fraternizing which has alarmed the school authorities and parents, being classed as dangerous to morals. In some instances vice clubs have been formed concerning which officials are protesting most vehemently. Were the above class examined, one no doubt would find the psychopath in the majority. This is on account of inherent suggestibility and weak resistance to temptation. Through this medium I wish to present in abstract, three cases occurring in one family referred to me by a confrere:

The Family History as given will suffice for the three cases to follow:

Paternal grandmother, psychosis. Paternal cousin, mental defective. Father history of repeated flare-ups in early life just as children are having now, later psychotic on reaching manhood for a period of one year, finally dying of tuberculosis at thirty-three. The mother, fourty-four, is of the nervous, complaining type and from appearances and conversation is below the average grade of intelligence. The subjects of this paper have one sister living and well at twenty-four, who is a teacher in rural schools. One at twenty-one and nineteen, who are married and appear normal, so the mother states. One sister dying at sixteen of influenza; a sister living at fifteen, who is case two of this paper; another sister dying at one year of typhoid fever. One brother living and well, age 23, apparently normal; another, age eighteen, who is case three of this

paper. The living members of this family all have a language difficulty to some extent. The subjects of these cases are all fairly well developed and fairly well nourished and reach an intellectual level of borderline, normal. All examinations made along physical and laboratory lines were essentially negative.

Case 1. Female. Twelve years of age, youngest of twelve children, schooling at six, progressed with classes until 1919,; there were, nevertheless, certain behaviorisms which appeared from time to time, when she was irritable, fussy, petulant and non-co-operative with school, destructive, restless and inattentive, requiring much correction on the part of the teacher. These moods would continue at home to a greater extent. She was finally taken from school, brought to the office with an added history of fits of temper when she attempted to choke her sister, and throw things at the family. On examination she was flippant, petulant, admitted her misconduct, giving as a reason that the family and children annoyed her and she wanted to be let alone. She was, nevertheless, clear and relevant. Treatment was instituted and three months following she had adjusted herself to a large extent and was able to return to school and when last heard of was doing fairly well there.

Case 2. Female. Sister of above, age fifteen. Early life uneventful, except tantrums, night terrors and stubbornness. At onset of menses, which are irregular, she is restless, emotional, irritable and, as mother states, stiffens out. Attended school until two weeks before my visit to her. Found her quiet, though timid with a history of amenorrhea and mild hallucinosis, a condition in which she clung to her mother as though terrorized. Was careful of exposure, emotionaly labile, answered questions relevantly. She nourished poorly and only after persistent effort of her mother. Following three months' course of treatment she was able to return to school, and from last reports was conducting herself satisfactorily.

Case 3. Male. Age eighteen, brother of above. Early life uneventful, except that he was not a regular attendant at school, during which time he was given to fits of temper and mild depression. Not a good mixer with the other pupils. He left school at fifteen, working here and there, no skilled vocation, complaining more or less of aches and pains for the past five years. At home the mother states he is easily upset, somewhat unreasonable and hard to get along with. Came to the office with his mother, they giving the following:

"That for three weeks previous he had been mildly depressed, he lacked initiative; this he states was due to the fact that he thought his co-workers were making fun of him. He was somewhat self-accusatory, concerning sexual matters (he denied venereal infection, likewise history of any exposure). Mother stated that he had repeated fits of temper at home during which he would strike his sister and have flareups, making it miserable for the family." He was clear and somewhat ashamed during the examination. Became emotional, stating he was unable to control himself because of his nervousness. He was treated for about two months, advised to change to another vocation, which he did. Last year he returned for a rheumatic condition and from history gained then, he had adjusted himself almost satisfactorily.

The aforementioned cases bring out very strongly the very suggestive type of these unusual children, happening in one family.

As to prognosis, what can we ultimately expect to happen to these children whose conduct reactions are not exactly normal. One group will adjust themselves fairly well to their social environment if conditions are favorable. That is, those possessing a certain degree of financial backing with proper home influence and surroundings. Another group will remain unchanged and grow up unstable men and women easily reacting to unwholesome stimuli, becoming delinquents and anti-social. There still remains a group which will eventually grow worse and become truly psychotic, thereby adding to our already overcrowded mental hospitals.

What can be done to reduce the very large numbers of these weak children? As regards the parent, a better understanding of eugenics, that is, giving due consideration to the physical side as being of paramount importance to their progeny. The teaching of mental, maternal and social hygiene at their respective epochs in the lives of the parents.

As regards the child, the enforcement of compulsory education wherein Americanism is taught in its entirety, for many are born among us today who are handicapped by a marked language difficulty. Furthermore, a closer and more scientific study of these children under surroundings conductive to their welfare and more rapid social adjustment when this is possible. This study should be conducted from every standpoint: internal medicine, endocrinopathy, neuropsychiatry and psychology. There should be specially equipped and intelligently governed psychopathic pavilions or classification centres, a department of which should be set aside for the study of psychopathic children. A well regulated psychopathic clinic should be attached to each juvenile court where each child should be examined. As to rural districts these clinics could be held at stated intervals near or connected with the various state mental hospitals the staffs supervising these examinations. This work can be facilitated to a large extent by the addition of a well regulated social service department, where follow-ups can be carried on. For those requiring temporary or permanent care, schools should be established where cases could be admitted either voluntarily or by commitment. At these schools, trades, occupations and psycho-therapeutic measures could be used as a means of aiding this class to help themselves, for among those entered

will be found the intellectually defective as well as the delinquent, which comprise one of our most difficult of institutional problems and who are potentially dangerous.

In conclusion, I trust I have succeeded in impressing you with the importance of certain facts, namely:

That the unusual child is always a potential problem, that something definite can be done to help this type of individuals. You can do this by teaching normal boys and girls they must not marry a misfit—because they will see the sad results in their children.

Besides this the profession can do a great deal towards stimulating the legislative and civic authorities to the crying need for the establishing of proper schools for the intelligent and humane care of these children.

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DISCUSSION.

Dr. Henry Dasnit (New Orleans): I think we should feel indebted to Dr. Otis for calling our attention to the handling of this particular type of personality in early life. Dr. Van Wart this morning went somewhat into detail about the mal-adjustment occurring late in life. If we could get these cases in childhood, I am afraid our neuropsychiatrists would not see many of them in adult life. The parents say these children are merely peculiar and bad. The parents as a rule cannot see anything wrong with them and we have to pick them up outside of the home for our first observation.

Incidentally, we must admit the influence of inheritance on the neuropathic constitution, and when we stop to think that those things which go to make up character formation are acquired early in life and always by imitation, and that the environment of these people of reduced resistance is dominated by the neuropathic parents from which they have sprung, we must consider more than the patient, and in almost every case we find a family problem. We must adjust the parents in regard to their attitude to that particular child, as well as the child. Dr. Van Wart spoke of part time or three-quarter time people, and we must find where they belong. The place to get them is in the public schools. We are supposed to have in Louisiana compulsory educational laws that are fairly indifferently enforced. The state school system should have one or more psychologists to weed these children out. These children show up in the public schools and should be handled in special classes. The special classes in our public schools are over-crowded with imbeciles who should not be treated in special classes, but really are a separate problem

altogether. It is in our school system that we will pick up most of these people.

Some of us have had experience in examining these sub-standard children in New Orleans. We can only lay the groundwork eugenically. It is all well and true that certain people should not marry, but they are the very type of people who gravitate together; they cannot meet the conflicts of life on an even basis with a normal individual and so they go off by themselves and usually intermarry. Compulsory laws might improve conditions two or three generations from now, but I think every medical man ought to regard himself as a disciple of that propaganda and try to cut down as much as possible the mating of the unfit.

Dr. H. P. Jones (New Orleans): For several years efforts have been made to establish homes for children who could not get along outside. Recently this has come to pass and we have with us this afternoon a man who has been through the country studying what is done with the feeble-minded in other states, and who has been through the best institutions the country affords. He is in position to tell us what we can expect Louisiana to do. I will call on Dr. T. W. Evans, superintendent of the Home for the Feeble-Minded at Alexandria.

Dr. T. W. Evans (Alexandria, La.): This is an old subject and I think Dr. Otis has covered it well. Dr. Daspit, in his discussion, referred to how we should reach the feeble-minded population of our state. The State Colony and Training School, an institution for the feeble-minded, has been started, and is located about five miles from Alexandria. Our problem in making a start along correct lines is large. We will have trouble keeping out certain patients that are not adapted to a training school. We should reach the subnormal children in the public schools. We have planned as a part of our organization a group to do field work. This group will be composed of a physician, psychologist and social worker who will visit the public schools of the state, making mental and psychological examinations of all children who are three or more years retarded. These examinations will, of course, be made on those whose retardation is due to menal impairment and not lack of advantages. After positively determining that an individual is defective we wish to intelligently advise the parents and principals of the schools what is best for the child. The lower grade children will have to be admitted to our institution. By conservative estimate there are in Louisiana between seven and eight thousand feeble-minded people. Of this about fifty per cent should be institutionalized. This means that preparations should be made to train and supervise between three and four thousand such people. The immediate problem of our school is to procure adequate legislative appropriation. Our budget to the forthcoming Legislature calls for a $600,000 building program. This amount would make a splendid start and will permit us receiving five hundred patients within the next two years.

The grounds of the State Colony and Training School have been laid off for future development, and to complete according to plans will cost during the next ten or fifteen years at least one and a half or two miilion dollars. If this expenditure is made we will not anything like take care of all of our feeble-minded population, so you can easily understand the magnitude of our problem.

I have just returned from Massachusetts, where I spent four months making a study of how they are handling the situation in their state. It may be said that all of their institutions for the feeble-minded are "schools" in the true sense. In the public schools of Boston and the State of Massachusetts ungraded classes are conducted for those who are not eligible to the various training schools.

The ungraded classes are conducted in separate buildings, and the contaminating influence of the sub-normal child is entirely removed from the normal group. In this way the normal child is not handicapped by the sub-normal. The feeble-minded population in the schools of any state is such a large problem that those states where it has been tried feel that it is cheaper to train and teach the sub-normal child in separate buildings under special supervision.

The work in Louisiana has just started. Very little building has been done on our new grounds, but the next time the State Medical Society meets in Alexandria we hope to have you visit us. We are very hopeful that we will be able to show you that Louisiana is awake to the needs of this heretofore neglected population.

The paper as read by Dr. Otis was certainly instructive, and very much enjoyed by me. I think it will help us all to better understand this problem, and I sincerely hope that all of you will remember that the State Colony and Training School is on the map, and that each of you will help us spread constructive propaganda so that future legislative sessions will make adequate provision for the feeble-minded population of our great state.

Dr. R. M. Van Wart (New Orleans): There is one aspect of this question which I do not think was properly presented. The marriage of these inferior people is much more prolific than the marriage of people in better circumstances. I recently had occasion to see a family of five, the highest in mental age being ten years. Both parents were feeble-minded. Look at the progeny of the better class of population and you find the number of children extremely small. I recently read an article on this subject in which the question was asked, "What is going to be the ultimate result of this? Will it not be that the better type of population will be swamped by the numbers of the unfit?" This writer goes so far as to give the present civilization less than 200 years to last. He looks at the present civilization from two points of view: First, that our sociology movements, such as child hygiene, the care of the unfit, is making it possible for them to increase at a ratio disproportionate to the other part of the population, whereas under more primitive conditions the unfit died from natural causes. Today, by the prevention of infectious diseases, we make it possible for the unfit to live, whereas under more primitive conditions this does not exist.

Second point of view is the effect of the improvement of machinery. This is making it more difficult for the lower class to make a living. Whereas formerly a man who could handle a pick and shovel could always find a job, today it is very difficult for a man of the lower order to find anything to do. Even farm labor requires a certain amount of ability. Today a man cannot run a farm unless he has mental ability enough to understand machinery. Fifty years ago if he could handle a mule he could make a living. The consequence is that the very essence of civilization has produced conditions which make it impossible for those unfit to live except under conditions of state socialism. The question of the amount that will be required by each state to take care of the unfit and those who can not earn a minimum wage and must be taken care of by the state, is a very important one, and those of us who form the tax-paying part of the population ask ourselves just where this will lead. This is apart from the subject of the paper, but it seems to me that where feeble-mindedness is concerned and those conditions which are on the increase, it is wise to ask just where this will lead us.

One thing among the many things that this state needs is a place for the man who wants help for some minor mental disturbance. He can go to a clinic or see a private physician, but if he needs

hospital care outside of a mental hospital he has no place to go. I think it should be the part of this society to urge upon the Legislature the necessity of the establishment of a psychopathic hospital where men could get proper assistance before they become a serious charge upon the state, and prevent this trouble at a time when it is possible to prevent it.

Dr. Walter J. Otis (closing): Thanks for indulgence and discussion. At the morning session the paper of Dr. Van Wart dealt with the problem in the adult; this paper deals with the child which is unusual. These children are not here of their own volition, their problem is our problem as well. To manage this we must have cooperation and legislation from all concerned. I speak for those who especially will be wards of the state; they are here and we must do all within our power to protect them.

THE LEUCOCYTIC COUNT AND ITS RELATIONSHIP TO VARIOUS CLINICAL DISEASES.*

By WM. H. HARRIS, M.D.

By the leucocytic count as herein considered is meant the total number of white blood cells per cubic millimeter of blood and the different varieties prevailing in each hundred of such cells. The most salient features emanating from such procedures are whether or not the total number of cells are increased and if increased, the percentage, especially of the polymorphonuclear neutrophiles.

This study of the total and differential leucocytic count is probably more generally employed for diagnostic purposes than any other individual laboratory test. It has its application in both the medical and surgical fields.

While the surgeon usually appreciates the significance of such counts occurring within his field, to the clinician its relationship to a particular disease is usually one of memory or he may seek its interpretation from the pathologist.

The purpose of these brief remarks is to demonstrate as far as may be practical, the actual relationship of the pathological lesion or lesions to the accompanying leucocytic count or the response, called chemotaxis, occasioned by the offending agent, if such response exists.

In order to more tangibly consider these phenomena it may be of value to discuss the three salient factors that are concerned in a disease process.

1st. The injurious agent, which is usually a bacterial invasion.

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2nd. The local response of the host.

3rd. The systematic response of the host as shown by the cellular elements of the blood and the serological or immunological reactions or formations.

1*st Factor*: In the first factor, while it is appreciated that there are various causes besides micro-organismal excitants which occasion a variety of diseases, the vast majority are produced by bacterial agents and it is these that we shall more especially consider. The various specific infectious diseases are caused by a very extensive number of known organisms such for instance as the streptococcus, staphylococcus, pneumococcus and the meningococcus of various types, the gonococcus, bacilli of typhoid, paratyphoid, dysentery, influenza, diphtheria, the pneumo-bacillus of Friedlander or B. mucosus capsulatus, the bacillus of glanders, anthrax, plague, the colon bacillus. All of these infections may be considered of a very intense and usually short time character and include many of the pathogenic bacteria or organisms capable of occasioning the formation of pus, i. e., pyogens. Into this group in this first factor may be included organisms, the specific response of which is generally of a different character, less intense in nature but more continued in their action and none the less fatal in their effect upon human life. These organisms are found represented in such forms as the various types of tubercle bacilli, the leprosy bacillus, the treponema pallida, the blastomycetes, actinomycetes and the like. It is not my intention to cover the index of pathogenic bacteria nor to dwell upon such protozoa as malaria, amoeba, trypanosomes, leishmania and the like nor to touch upon the filterable viruses. It is important nevertheless to carry out a certain amount of enumeration of these various causative factors under this consideration of the injurious agent to demonstrate how far reaching the mechanism of the leucocytic count may extend.

2*nd Factor*: In the second factor or the response of the host locally we find a very important consideration bearing upon the relationship of the disease produced and the effect if any, upon the leucocytic count. We must, therefore, consider the tissue changes or the histo-pathology which occurs in the area or areas of injury. In other words, it is necessary in order to elucidate this phase of the subject to consider just what

changes occur in a structure invaded by the various groups of organisms.

Certain of these organisms provoke one form of reaction, others another form; as a whole, the lesions produced may be classified as exudative, proliferative and degenerative. Any combination of these various components may exist in a given area. It is best to describe various examples in order to elucidate the 2nd factor, i. e., the response of the host locally as compared to the third factor or systemic response. If the tubercle bacillus invades the tissues of the lung, what phenomena occur? The organisms excite chiefly a proliferative type of lesion and for this reason we find that miliary tubercles are formed. These miliary tubercles are made up chiefly of epitheliod cells the derivation of which is considered to be the endothelium of various vessels in the immediate area. In conjunction with the epitheliod cell formation, giant cells which have their origin from the epitheliod cells are also formed. Accompanying this a low grade chronic inflammatory lesion characterized by lymphoid cells, may also prevail. When the tubercles attain a certain size, necrosis of the center or caseation occurs.

Thus we see that up to this stage, the response on the part of the host has affected only the local area as regards it cytological constituents and hence, the leucocytic count made at the ear lobe, finger or toe shows no increase or perhaps a decrease or leukopenia. This decrease may be due to an inhibitory substance emanating from the tubercule areas and acting upon the leukoblastic areas or to a decrease in certain nutritive substances of the blood supplying the leukocytogenic centers. It may be considered that the differential count often shows an increase in the percentage of lymphocytes which is in accord with the lymphoid cells apearing in the field of invasion. The sections, therefore, of the actual lesions are in accord with the blood count findings, i. e., no accumulation of polymorphonuclear neutrophiles are found therein and hence no leucocytosis or neutrophilic cell increase are noted.

Another forceful example of the relationship of area of invasion or pathological changes produced and blood count findings, is found in the instance of typhoid fever. The typhoid bacillus through its endotoxin produces localized accumulations

or proliferations of endothelial cells, or phagocytic cells of Mallory, whether they act upon the solitary follicles of the intestinal tract, the accumulations of such follicles or Peyer's patches in the ileum, the mesenteric lymph nodes, the spleen or the liver. Thus, again we see that there has been no call for numbers of leucocytes and hence the total count or percentage of polymorphonuclear neutrophiles are not increased, in fact as in tuberculosis there may, for similar reasons, exist a leukopenia or actual decrease. In a similar manner the leprosy nodule, the proliferative lesions of the treponema pallida, i. e., the chancre or the gumma are found not to occasion a systemic cellular increase.

As an example of a violent acute lesion failing to demonstrate an increase of the leucocytes, we may consider the severe influenza cases existing in our recent epidemics. In the lung lesions of the rapidly fatal cases wherein no secondary invaders as the streptococci, staphylococci or pneumococci had appeared, the lesion was hemorrhagic in type with practically no polymorphonuclear neutrophiles present and hence leukopenia or absence of increase of the leucocytes existed. Many more such analogies exist but these examples appear sufficient to establish the relationship of the 2nd factor or the response of the host locally with the consideration of the leucocytic count.

3rd Factor: The response of the host systemically. In this group the cellular and fluid elements of the blood and the serological or immunological elements are to be included.

It is in this third factor that we find the interesting phenomena of leucocytosis. Unlike the preceding organisms such as the typhoid, tubercle or leprosy bacillus provoking a localized response, we find organisms which when they invade the body structures, be it brain, tonsils, lungs, liver, kidney, bone or elsewhere, produce specific biochemical substances which occasion not only an outpouring of the neutrophiles already present in the local vessels but even transmit this stimulating substance to the very factories of neutrophilic cell production.

Experimental evidence shows that cells respond to stimuli of various kinds but chiefly through the effect of these stimuli upon surface tension; if they decrease the surface tension, the cell goes forward, if they increase the surface tension the cell recedes. The behavior of the leucocytes in inflammation may

be explained on these grounds. At the site of cell injury or infection, chemical substances are produced that tend to lower the surface tension of the leucocytes and thus exert a positive chemotactic influence. Such a stimulus is capable of transmission via the blood stream to the centers in the bone marrow. Metschinkoff's various other phenomena also are noted locally.

While this particular factor of stimulation is possessed by certain micro-organisms, notably the pyogenic or pus producing bacteria, it must be noted that various chemical and physical agents possess local, constitutional or physiological powers of producing general or local increase of leucocytes. If croton oil, for example, is applied to the rabbit's ear, an extensive outpouring of polymorphonuclear neutrophiles will occur. A positive chemotatic action has been produced in some biochemical manner although the leucocytes responding have a scavenger function rather than a defensive or fighting purpose as when provoked by invading microorganisms. From the system standpoint, baths, exercise, eating and other normal processes may temporarily stimulate the number of leucocytes. The most notable leucocytic phenomena, however, are produced by certain microorganisms, but just why some possess the capacity of producing these stimuli and others do not, cannot, of course, be explained anymore than one can tell why the typhoid bacillus should produce typhoid fever, the meningococcus, menengitis or the streptococcus an empyema.

It is in order in this third factor as in the instance of the second factor, to discuss the relationship of local pathology to the leucocytosis occurring concomitantly and this can best be done through certain diseases employed as examples.

In lobar pneumonia, we find in the stage of gray hepatization, the alveoli filled with polymorphonuclear neutrophiles. These neutrophiles have been derived from the blood stream. The total leucocytic and neutrophilic counts, therefore show a marked increase in numbers. In meningitis due to the meningococcus, streptococcus or pneumococcus, the spinal fluid shows numerous pus cells and sections of the leptomeninges of the brain or cord demonstrates leucocytosis of the local vessels and an outpouring of leucocytes of the polymorphonuclear neutrophilic variety in the meninges themselves, hence the total leucocytic and neutrophilic counts are increased. (Contrast such

a meningitis to one occasioned by the tubercle bacillus wherein localized cells form the nodular lesion and we find no leucocytosis unless a secondary invasion of some other organism or a concomitant lesion elsewhere of a different nature has occurred or necrosis of tissue has created stimuli calling for the leucocytic response.) In tonsilitis, erysipelas, septicaemia, lesions are occasioned by the streptococcus in which we find numerous neutrophilic leucocytes and hence systemic leucocytosis. In surgical lesions of the mastoid, appendix, pleural cavity, peritoneum, liver, kidney bone and elsewhere, pyogenic bacteria provoke either an accumulation and destruction of leucocytes forming pus or a diffuse neutrophilic cell distribution and hence leucocytosis prevails and the polymorphonuclear neutrophiles are increased.

An acute appendix shows microscopically varying amounts of polymorphonuclear neutrophiles throughout its structure, all of which have diapedesed from the blood vessels. The variants in total counts and neutrophilic percentage represent variations in the character of stimuli both locally and upon the formation centers. Pus accumulations in the pleural cavity, fallopian tubes, and other areas while primarily accompanied by a leucocytic and neutrophilic cell increase during the formative period may subsequently show no increase, either due to the lack of further formation of stimulating substances or to a depression of the leukoblastic centers. Another feature to be considered is the formation of boils containing pus without a generalized leucocytosis. The pathological sections of such lesions show large numbers of neutrophilic leucocytes but these have been derived through chemotaxis from the local vessels without demonstrating a systemic leucocytosis or if these cells have been increased in order to supply such a demand, the amount of increase has not been appreciable by our current methods of technique.

The appearance of an increase of other forms of cells in the differential count such as the eosinophiles or lymphocytes is due to a modification of the stimuli, exerting a diminished surface tension upon these specific cells either locally or a specific stimuli upon the areas of formation. Subacute inflammatory lesions are characterized by a large accumulation of eosinophilic cells locally such as subacute salpingitis, appendicites,

bronchitis and the like. Intestinal parasites produce astimulus not only locally upon the eosinophiles but also at times directly upon the leukocytogenic areas.

A combination of both second and third factors is appreciated for example in such lesions as tuberculosis and typhoid fever. Tuberculosis of the lungs, as previously discussed, falls within the second factor of local response, but when the tubercles conglomerate and caseate and finally communicate with a bronchial tube lumen, secondary invading organisms of a pyogenic character invade and pus is formed. At this stage sepsis is in evidence clinically and a leucocytosis and neutrophilic increase occurs due to this superimposed infection. In typhoid fever, in the proliferative stage occasioned by the typhoid bacillus, the reaction is from the local areas and there is no leucocytosis, when the mass becomes necrotic from plugging of the vessels through endothelial cell accumulation and blockage of blood supply, plus the action of the toxin, then again as in the tubercular cavity, pyogenic organisms create a superimposed lesion with the leucocytosis locally and systemically. When perforation occurs the peritonitis is produced not by the typhoid bacillus but by the secondary invading organisms with, of course, leucocytosis. The drop in leucocytes reported at times following perforation represents a depression of the leucoblastic areas or a devitalization of these physiological functions.

CONCLUSION.

There is set forth herein the relationship of various disease processes to the leucocytic count and also an explanation of the manner of this occurrence from the histo-pathological standpoint.

DISCUSSION.

Dr. R. O. Simmons (Alexandria, La.): The leucocytic count is a very important factor in diagnosis. Especially do we surgeons depend upon the leucocytic count in an acute condition where we suspect pus formation or serious lesions, and were it not for the blood picture in many of these cases the surgeon would be at sea. When I first began to practice medicine, as you all know, we knew very little about the microscope. What I have learned I have learned from younger men and by actual clinical experience, and I will leave it to the younger men who are better able to discuss this subject than myself, saying at the same time that in all acute suspected surgical lesions we depend very largely upon the leucocytic count.

Dr. H. P. Jones (New Orleans): I would like to ask if anything was ever brought out in the work carried out in connection with influenza cases as to the bone marrow. It was supposed that the bone marrow was a very serious factor in this disease, and I sent to Washington a great many sections of the long bones. However, I have never gotten any special report on that subject with reference to the leucocytic influence in this disease.

Dr. J. George Dempsey (New Orleans): This subject appeals to me from the tuberculosis standpoint and I would like the doctor to mention in his answers to queries. He mentioned the absence of leucocytosis in beginning tuberculosis and beginning typhoid fever, and then as the disease progressed and as the other conditions developed in typhoid fever there was a leucocytosis. Did the same thing occur in tuberculosis? I am not a pathologist, and it is information I am seeking.

Dr. J. A. Lanford (New Orleans): In his consideration of the value of the differential leucocyte count, the doctor did not mention the value from the standpoint of prognosis. We know that when the system is infected with pyogenic organisms, it responds readily with an increase not only in the total white cell count, but also in the comparative neutrophilic element, which response should go hand in hand with the severity of the infection. But if we have clinical evidence of an acute pyogenic infection, without the expected systemic response, as shown in the leucocytic count, we are warranted in using this evidence in prognosing the outcome of the case.

To illustrate this point we will take appendicitis. The patient will become suddenly ill with all clinical evidences of appendicitis. There will be a count of 20,000 white cells with 80 to 85 per cent of neutrophiles. If, for any reason, it is impossible to operate at that particular time, postponing surgical interference for 24 hours or longer, and we then find the case clinically declining, showing a white cell count of, say, 8,000 with a corresponding drop in the neutrophile percentage, we would know that the body is not properly caring for the infection and prognosis is unfavorable.

In this connection I would like to report a case of lobar pneumonia, which I saw in the last six months. This disease is always associated with a high leucocytic count and a high neutrophilic percent. In this particular case the first count, made within 24 hours of the onset, showed only 17,000 white cells and neutrophiles 88%. As the case progressed, daily blood counts were made and on the third day the blood count had fallen to 16,000 with 85% neutrophiles. The fourth day the white cells had dropped to 6,500 and 60% neutrophiles. The fifth day the white cells were 2,500 with 55% neutrophiles. The sixth day the total cell count was only 800 with neutrophiles 40%. Needless to say that death took place very shortly afterward.

It is therefore important to consider the leucocytic cell count both from the prognostic and diagnostic standpoint.

Dr. Allan Eustis: I would like to ask in regard to the post-operative cases. We see these cases of leucocytosis following operations. In listening to his explanation of the causes of leucocytosis, I do not see how a leucocytosis can be explained in any other way than by infection. It may not go to pus formation, but can you have leucocytosis simply by the absorption of hemolytic material?

Dr. W. H. Harris (closing): Dr. Simmons very clearly pointed out the usefulness of the leucocytic count, but I do not think there was any particular feature in his discussion that requires an answer.

Dr. Jones asked about the bone marrow in influenza. I am sorry to say that the information in such a regard during the recent epi-

demics has been very scanty. The majority of work appertained to the etiology, and there has not been a great deal accomplished in that field. We know that influenza carries with it a profound toxemia, and that such a toxine carried in the blood stream exerted a toxic effect upon the bone marrow. Degenerative processes were as a consequence observed and even hemorrhagic extravasation.

Dr. Dempsey asked about the leucocytosis that may occur in typhoid fever and tuberculosis. I would say that in both tuberculosis and typhoid fever it does not occur as long as the response called for is a proliferative response. These organisms or their toxins injure a particular area and the cells responding to that injury come from the immediate areas. We may have a miliary tuberculosis which may be acute and the patient may die without ever having a leucocytosis. As a rule, however, these tubercles are liable to secondary invasion by pyogenic microorganisms when caseous necrosis has occurred and portions escape through the bronchial tubes. When these other organisms invade they give rise to abscess of the lung which is accompanied by a leucocytosis, the leucocytes having been derived from the blood stream. In the intestines the same thing can occur, because when the ulcer breaks it permits invasion. In the instance of bones, where the secondary organism cannot come in, we do not get a rise of leucocytes. In typhoid the same situation occurs as long as the lesion is a proliferative lesion, but when secondary invasions occur in these areas, we do find an increase in leucocytes.

Dr. Lanford spoke of the interpretation of the leucocyte from a surgical standpoint. We practically always refer to the neutrophilic response. We do find certain unusual exceptions; for instance, I remember a case of salpingitis in which there was a total count of 35,000, with eosinophiles 85%, showing the possibility of the eosinophiles taking the role of the neutrophiles in the sub-acute variety of lesions. This was a very unusual case seen about two years ago. The reason why the leucocytes drop is because of the fact that the stimuli do not provoke the direct reaction they should. In other words, a positive hemotaxis and proper reduction of surface tension of the leucocytes do not occur, and the individual has practically been devitalized.

Dr. Eustis brought out another phase, and that is the manner of increased leucocytes due to other causes than infective material. We get physiological leucocytosis following a meal, or exercise, and various other physiological functions, which are not permanent. The leucocytes he refers to represent the leucocytes responding for lytic or scavenger purposes. In other words, leucocytes have a two-fold function, the function of defense and the function of aiding in the absorption of whatever process may be going on following these procedures when there is naturally a tremendous amount of material thrown off which calls the leucocytes to that area. We can occasion, by the application of croton oil or sulphuric acid to tissues, though the area be sterile, a marked leucocytosis, because the injury to the tissues calls for those leucocytes which come there in a scavenger role.

Dr. Bel saved me the trouble of going into the discussion of the various details and very kindly added additional information to the work. I regret the fact that the paper is not as replete as I should like it to be for the reason that the subject is so extensive and time would not permit. I thank you.

A PUZZLING CASE OF FEVER.*

By A. E. FOSSIER, A.M., M.D.

The uncertainty of opinion as to the diagnosis of this case compels me to present it to this Society for your consideration:

X. Z.—White male, born in Louisiana and a resident of this city. Civil engineer and contractor, 38 years of age. Has not been out of the city for over a month.

January 28th: The patient was well in the morning, played tennis in the late afternoon, but had to discontinue because of feeling badly. That same evening he had a chill followed by a high temperature, which rose to 103 degrees.

January 29th: He had 103 degrees of fever all morning. Visited the patient for the first time about 5 o'clock that afternoon. Found the following condition: Face extremely flushed, florid, extremely congested, the redness and florid condition extended down to the upper portion of the chest; eyes injected, marked photophobia; severe pains in the head; soreness and feeling of great discomfort in the region of the epigastrium; some flatulency. Lungs, heart, liver and spleen were nomal. Temperature, 103 3/5 degrees. Pulse, 86. Patient vomited three times, slightly constipated, was purged with calomel.

January 30th: The condition was the same as the previous day but was aggravated. Complained of insomnia. Pains especially in abdomen and head. The temperature in the morning was 102 3/5 degrees; in the afternoon it rose to 104 degrees. At about midnight he had a chill which was followed by a rise of fever to 103 3/5 degrees. The pulse was between 63 and 68.

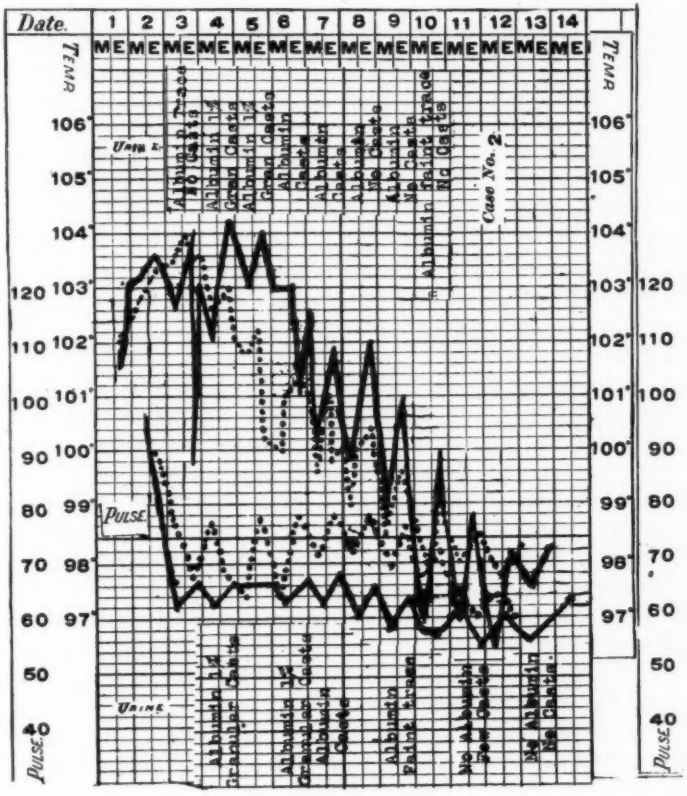
January 31st: The patient presented the same symptoms, the temperature ranging between 102 and 104 1/5 degrees. Pulse 62 to 68. The urine was examined for the first time and showed 1% of albumin. Specific gravity 1.028, very acid, color dark brown (Port wine color), coarsely granular and hyaline casts (bile stained).

February 1st: The temperature at noon was 103 degrees. In the afternoon the patient was feeling better and the epigastrium pains were relieved. At about five o'clock in the afternoon he had cold sweat followed by a chill, after which the

*Read Before the Orleans Parish Medical Society.

fever rose to 104. Pulse 66. Severe epigastric pains followed. This was his worse night. Urine examination: no change except urine slightly lighter in color. Complained of insomnia.

February 2nd: Temperature all day stationary about 103 degrees. Pulse 62 to 66. At 10:30 o'clock that night the tem-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CASE 1. "Solid lines." Temperature and pulse chart of the case presented by the author.

CASE 2. "Broken lines." Temperature and pulse chart from one of the experimental yellow fever cases reported by the U. S. Army Yellow Fever Commission. (From Stitt.)

perature dropped to 101. Urine showed albumen, casts and lighter color.

February 3rd: Patient greatly improved, temperature down to 100 degrees. Pulse between 60 and 68. Urine improved. Faint trace of albumin, few granular and hyaline casts.

Blood examined by Dr. C. C. Bass: *Negative Plasmodia.* Total white count, 6750; polymorphonuclears, 68; small lymphocytes, 23; large mononuclears, 7; eosinophiles, 1; myelocytes, 1; Widal, negative. Urine and fecal examination by Dr. Gomila. Stools very fetid (putrid) no occult blood, color, black.

February 4th: The patient continued to improve, feeling much better. Fever varied from 99 2/5 to 101 1/5 degrees. Pulse 60 to 65.

February 5th: Temperature subnormal for the first time. Pulse 58 to 62.

February 6th, 7th and 8th: Temperature subnormal. Pulse 54 to 60.

The patient was seen by Dr. Lerch in the forenoon of the second of February and later that day by Drs. C. C. Bass and Gomila. They all agreed that the symptoms warranted a suspicion of yellow fever.

In view of the suspicious character of the symptoms I sent a history of the case to Dr. John Callan, president of the City Board of Health, and he, together with Dr. Williams and myself, visited the patient. The following day Dr. Callan again visited the patient accompanied by Drs. Williams and Ebersole of the United States Public Health Service. The opinion of these gentlemen as expressed by Dr. Callan was that there was nothing suspicious in the case.*

It is evident from the onset, course and termination of this illness that we were dealing with an acute infectious disease. The patient was well previous to the initial chill. He was under my observation twice a week for over a month before this illness. He was being treated for a cystic goitre and showed no manifestation of toxic symptoms. The pulse was 76 and was at all times normal, and the urine free from albumin and casts.

Now what is the diagnosis?

Dengue is excluded because: (1) The temperature chart. (2) The low pulse (in this case Faget's law so clearly demonstrated) sometimes found in Dengue, but never as low as in this

*Since the reading of this paper a mosquito survey of the city was planned by the City Board of Health.

case. Touatre[1] says: "This phenomena of the slowing of the pulse in Dengue has impressed certain physicians, although it is produced only at the termination of the disease, while the phenomena of progressive fall occurs only the first three days of Yellow Fever." Also L. C. Scott[2] tells us that: "The pulse has usually found to increase fairly proportionately to the temperature (44.74%) but many instances of a slow pulse have been noted (25.53%). The rate varied between 70 and 150." (3) The lack of pains in the joints and the muscles. (4) Absence of the characteristic eruption. (5) The presence of Albuminuria and casts. (6) The absence of marked leukopenia.

Pneumonia: Lungs absolutely free of all pathological symptoms.

Influenza is eliminated because: (1) The onset. (2) The absence of coryza and of other respiratory involvement. (3) The slow pulse. (4) The early albuminuria, etc. (5) The quick recovery. (6) The general aspect of the patient. (7) The normal spleen, etc.

Malaria is eliminated by reason of the absence of the malarial parasite in the blood, the normal spleen and liver, and the subsidence of all symptoms without the use of quinine or any other anti-malarial remedy.

Typhoid is debarred from consideration on account of the negative Widal, the onset, duration and character of the illness.

Abdominal conditions and disease of the gall bladder must also be excluded. The lack of any previous similar attacks in the patient's history. The normal blood count which definitely speaks against any pus or inflammatory condition in any case presenting such severe symptoms. The presence of the albuminuria and casts and their rapid subsidence do not point to any abdominal diseases.

From the symptom complex presented by this patient we can not but deduct that it resembles Yellow Fever and in fact that it presents the characteristic symptomatology of that malady.

Guiteras[3] lays stress that three diagnostic points are sufficient for the diagnosis of Yellow Fever, namely, the facies, the albuminuria and the slowing of the pulse with maintenance on elevation of fever.

The cardinal symptoms of this disease as they are handed down to us since the days of Dezeve[4] and Rouchaux[5] in the

early 1820 to the recent report of Charles Elliott[6] (clinician for the commission for the study of Yellow Fever during the summer of 1918 at Guayaquil as submitted to the International Board of the Rockefeller Foundation) are the same, distinct and clear-cut. They are: the sudden onset, beginning with a chill followed by high temperature generally in the evening or at night. Duration, 8 or 10 days. The facies. Affection of one paroxysm. Faget's phenomena of lack of correlation between the pulse and temperature. Pains in the epigastrium and over abdomen. Albuminuria, dark scanty urine, bile stained casts, etc., manifesting itself as early as the second day. In cases of moderat intensity the albumin lasts 2 or 3 days, with normal blood and with an increase of the large mononuclears, spongy and bleeding gums, capillary stasis, and the gradual and progressive development of jaundice and black vomit.

Tourtre[(1)] says that Yellow Fever presents symptoms, which when grouped and seen in block, make it a perfectly typical affection resembling no other morbid entity.

Stitt[7] says that the main points to consider in the diagnosis are: (1) The facies; (2) the severe cephalalgia and rachialgia; (3) the early albuminuria; (4) the epigastric tenderness; (5) Faget's law of lack of correlation of pulse and temperature; (6) the absence of clouding of the consciousness, and finally the late appearance of the jaundice and hemorrhages.

This patient manifested all the symptoms as set down by Stitt and other authorities, except black vomit and extreme jaundice. In my patient there was a suspicion of jaundice. It is an established fact that the presence of the icterus is not a constant symptom of that malady. All authorities agree on that point. For brevity sake I will quote only a few.

J. A. Rouchaux[5] in 1828 wrote: "Not only jaundice does not especially belong to Yellow Fever, but it does not always present itself in that malady. In the number of those who recover, on the contrary, there are at least half who do not have jaundice."

Dezeve[4] in 1820 admonished: "I will repeat again so that it will not be forgotten, and that we should not be tempted in certain cases, to deny the existence of Yellow Fever because one or the two (jaundice and black vomit) are absent or because both may be missing in the same patient."

W. Griesinger[8] in his book of Infectious Diseases, published in 1868, says: "In fortunate cases, jaundice does not develop, and even less so the hemorrhages."

Charles Elliott[6] says also that jaundice is inconspicuous in most light cases.

It may be advanced that Yelow Fever does not occur in January; yet the first case to die of Yellow Fever (confirmed by autopsy) in 1858 was in January, and there is a record of death of that disease in that month in 1898. The mildness of the winter, the absence of freezing weather, the presence of the carrying mosquitoes and the prevalence of Dengue (which occurred rather late in the summer) are good arguments for its possible presence at that time.

In any epidemic of Yellow Fever this case would undoubtedly have been classed as such.

What is the nature of this case after all? By what name shall we call it? My reason for presenting it to you is because I feel that all puzzling cases of disease should be presented for discussion in this Society.

All signs indicate to the possibility of a visitation of this scourge this summer. For conditions today are such that there are possible ports of entry besides the regular quarantine stations. Contraband commerce is rampant, multiplying our relations with Latin-American countries and islands and especially with Mexico, without Federal Health Supervision.

Stegomyiae are plentiful here, our efforts should be directed to eradicate them.

May this not be a warning or precursor of what the next summer may bring?

I close with the appropriate warning of that respected confrere and sanitarian, Sidney Theard[9]: "We cannot brush lightly the possibility of future infection? Just as long as Yellow Fever exists, and I am yet to learn of a single disease which has ever been wiped out from the face of the earth (names change, but diseases remain), just as long as there are stegomyiae flying loose somewhere in the wide world of ours, just so long will we reckon with the possibility of the re-introduction of Yellow Fever infection and be prepared to prevent its spread when it appears."

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DISCUSSION.

Dr. C. C. Bass: I took advantage of Dr. Fossier's invitation to see this case largely out of curiosity, because it was suspected he had yellow fever. I had the opportunity of seeing a great deal of yellow fever in 1905 and got certain impressions, lasting to this day, with regard to yellow fever. I confess that when I saw the case and heard the history I was so confident that we would be able to find malarial plasmodia that I did not think much about yellow fever when I was there. Needless to say, the patient did not have malaria, as I suspected.

As I recall yellow fever, this case lacked three particular symptoms,—or lacked sufficient prominence of these symptoms:

1. Gingivitis is present and usually marked in all cases of yellow fever. It was present, but in a lesser degree than I would expect.
2. Capillary stasis; although present in this case, was not present to the extent that my impression would lead me to expect if this was a case of yellow fever.
3. Icterus by the third or fourth day is present in a very large percentage of cases, if not all, and in this case was not marked. In my mind there is no doubt as to whether it was present at all.

After seeing the case and examining the blood and removing from my mind in particular the question of malaria, I was then, and am yet, unable to say that the patient did not have yellow fever. I cannot say he did have it, but I cannot say that he did not.

Dr. A. E. Fossier (closing): I am gratified that Dr. Bass saw this case. The reasons refraining the doctor from making a positive diagnosis of yellow fever are of a minor character. I have looked up the literature and I have also consulted older physicians (who know yellow fever) as to the presence of icterus in that disease. Dr. Lerch, who saw this case, had a severe attack of yellow fever in 1897 without jaundice; this, I am sure, Dr. Gessner, his physician at that time (present here tonight), will confirm.

Again I wish to emphasize that Rouchaux nearly a century ago stated that in over one-half of the yellow fever cases that recovered, there was no jaundice. All authorities since that time agree on that point. From the evidence submitted we are forced to conclude that the absence of jaundice does not deny the presence of yellow fever. This patient gave all the major manifestations of yellow fever. There is no other acute infectious disease that will fit in the clinical picture presented by my patient. Again I ask what is it? The patient was seriously sick, and today he is well. A few have said it was not yellow fever, but to my knowledge they have not given it a name.

I think it very fortunate that cold weather set in. This case presented symptoms characteristic enough to warn our authorities; as this may be a forerunner as to what may happen this summer.

This is the reason why I present this case to the Society.

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THE MEDICAL PARASITE.

The big, basic idea of "take and give" enters not into the parasitic life led by too many members of our altruistic profession. The true parasite takes all and gives nothing in return. So it is with the medical parasite, he sucks the lifeblood from the vast storehouse of knowledge treasured in current literature and in textbooks. He enjoys all the rights and privileges of organized medicine. In every worldly sense he walks the path of velvet. But the medical parasite makes no return to his profession whence these blessings flow. He tacitly recognizes the power, the worth and prestige of medical organization. He pays tribute to Esculapius and is even on the roll of the local and State societies. But his is a passive membership.

He spins in the web of his fancy that he is too busy to attend meetings. Or he pours the flattering unction to his soul that such attendance would be waste of time. Why go hear rehashed platitudes and listen to the recitation of a whole rosary of empty phrases? This is the Philistinic conceit of "I know more than thou." Nevertheless, to save us from a deadening intellectual inertia the quickening work of medical societies must go on. The medical parasite fails to realize that in order to get his mental pabulum some must write and read papers for him. Some must discuss them, but all must catch the finer spirit and the lofty purpose of such meetings. The parasite, forgetting the high ideals of our calling, is satisfied to live off the other fellows' lifeblood and sweat, through the medical journal. Remember, he is not a slouch. He is self-satisfied. He is successful, but not venal. In fact, he may be the very personification of the good Samaritan. Success alone should make him grateful and inspire the desire to offer something from his personal experience. All of us cannot blaze new pathways. But even as trailers along the beaten path our daily contact with the Protean forms of disease gives the ever present opportunity of registering a new observation, or lighting on some new surgical, or some new therapeutic wrinkle. No one is so poor in experience, or so barnacled in ignorance, that he cannot add his humble mite to the sum total of medical knowledge. Medical progress depends on these individual accretions. The parasite's impuissance in doing this is sheer callousness and supreme indifference. Is it ever an overpowering timidity in self expression? Then one can escape the reproach of parasitism by mere attendance at meetings. This in a way is a silent contribution of good will and encouragement to the active workers.

Shade of Esculapius! They need to be encouraged less they falter. They need to gird their loins, these torch bearers, so that when they are brought face to face with seemingly insuperable obstacles they will be spurred on to carry the light still farther.

Gentle reader, the day for the conversion of the medical parasite is at hand. We are on the eve of our annual State Society meeting. Make it memorable by bringing one convert with you, and there shall be great rejoicing "over the return of the sheep that had gone astray."

BEWARE!

A few months ago we issued our periodic warning about the danger from mosquitoes, basing our latest argument upon the epidemic of dengue just then ending and calling attention to the fact that if the disease is propagated by means of the same mosquito which transmits yellow fever, only a spark, represented by an imported case of the latter disease, would be needed to start a conflagration of yellow fever.

If we had any illusions as to the results to be expected from our contention they certainly have been dispelled ere this. Nothing that we know of came of it.

But now another phase of the subject is presented in a paper, read by Dr. A. E. Fossier before the Orleans Parish Medical Society and printed in this issue of the *Journal*, entitled "A Puzzling Case of Fever." Like our former editorial this case has apparently attracted little attention, yet, in our opinion it is of vast importance. It seems to us that Dr. Fossier has made his point. If that case was not one of yellow fever what was it? In the absence of a definite bacteriological test, still lacking in yellow fever notwithstanding Noguchi's researches, or of a post mortem examination, which luckily for the patient was unavailable, no stronger proof of the identity of a disease or condition may be presented than by a diagnosis by exclusion. As Fossier puts it, "what is the nature of this case after all; by what name shall we call it? He is right also in dismissing as futile objections the absence of black vomit and of pronounced jaundice: the latter is frequently so mild in cases of moderate severity as to escape observation almost, and black vomit occurs only in a minority of non-fatal cases and not invariably in fatal cases.

What we must not close our eyes to is that we have stegomyia mosquitoes in this State; that irregular hence unobserved lines of communication exist with tropical countries because of the rum traffic with tropical territory; that we have had at least one very suspicious case of fever; that we have had all told an exceedingly mild winter. That quadruple combination is one filled with danger. This community must be made to realize it and its doctors and sanitariums are the ones to make it do so.

We hear of preparations for a mosquito survey. An excellent thing although its results may fairly be discounted, but we must not lose time if any practical results are to follow. This is the first of April and it must not be forgotten that in the past yellow fever has been known frequently to start in May.

Fortunately conditions have changed: there are no longer the same horrible dread of the disease, the same temptation to conceal its presence, the same danger in telling the truth about it. We have, on the other hand, the knowledge of its method of propagation and for its control, but prevention nevertheless is still far better than cure and it behooves us to act promptly and energetically in accordance with that wise old precept.

U. S. HOSPITAL 66.

The Congress recently adjourned voted an appropriation of six hundred and seventy thousand dollars for improving and enlarging the capacity of United States Hospital 66 at Carville, Louisiana. This hospital, the National Leprosarium, at present can accommodate one hundred and seventy patients and is full to its capacity. The appropriation will permit the erection of buildings sufficient to house and care for three hundred and thirty more inmates. Whether or not five hundred beds will be sufficient for the number seeking admission is not positively determined, but indications point to a far larger number of lepers in the States, and from the number of known cases at present waiting admission it may be inferred that more than five hundred will voluntarily apply for admission.

From the favorable disposition of the last Congress it may be hoped that the future needs of Hospital 66 will be provided for also. We note with pleasure this advance towards the ideal of a former editor of this journal, Isadore Dyer, through whose efforts over a quarter of a century ago was established the little colony from which has grown this national enterprise.

In the light of present knowledge it may be said that segregation is the best means of combatting the spread of leprosy, and while this fact is the "raison d'etre" of Marine Hospital 66, it is possible that with its unusual opportunities for study, an even larger usefulness may be obtained by the solution of the baffling problems of treatment and method of transmission.

SOCIETY PROCEEDINGS.

PROCEEDINGS OF THE HOTEL DIEU STAFF.

Monthly Meeting for March, 1923.

The President, Dr. Homer Dupuy, in the Chair.

CHRONIC SPHENO-ETHMOIDAL SINUSITIS.

DR. HOMER DUPUY could not present his patient as she was in bed with the grippe. He stated however that she was subject to headaches for many years. There was a profuse, purulent nasal discharge from the left cavity. Her general health seemed affected as she had lost 20 pounds. A previous middle turbinectomy had given no relief to the pain or to the discharge. On January 16, 1923, complete left Ethmoidectomy was done. The anterior wall of the left Sphenoid Sinus was entered with Dupuy burr. The sinus contained pus. Circular movements with the burr through the bony wall established an opening, and practically the whole of anterior wall was removed. At present date headaches and nasal discharge were greatly relieved. There were no eye symptoms before or after operation. This case was reported to emphasize that in a region surrounded by so many vital structures the hand burr presented many advantages. It entered the anterior wall of the Sphenoid quite readily and with the least amount of jarring. It was the safer and more efficient instrument. An X-ray of the burr in situ was exhibited. The picture was taken by the Hotel Dieu X-ray Department and was one of the first of its kind. The burr was shown in the Sphenoid of a living subject. Dr. Dupuy said that only a few years ago it was predicted that the Sphenoid Sinus would prove inaccessible to surgery. He deprecated this lack of prophetic vision.

DR. DIMITRY was pleased to note the increased interest in the sphenoidal sinuses. He believed that many an atrophy of the optic nerve had been unaccounted for, as a result of the want of better knowledge and surgical skill in handling these air spaces.

He was interested in the study of the development of the air spaces and sounded a warning as regards increased care in diag-

nosing a sinusitis in childhood. He had had much opportunity for the study of the sinuses in stereo but expressed the opinion that the Granger technic for radiographing the sphenoidal sinuses was a great step forward and superior to the stereo. In the taking of radiograms of the sinuses, he recited the necessity for blowing the nose just before, for it often cleared what would appear as an increased density in a picture.

It would surprise many to learn that a sinus might be very much diseased yet give very few objective symptoms with the exception of accommodation difficulty and muscular asthenopia.

DR. LAROSE had not had very extensive experience with operations on the Sphenoid Sinus. This field was admitedly a very difficult one. He had seen the picture of a burr for Sphenoid work similar to the Dupuy instrument. However, this did not detract from the merits of Dr. Dupuy's burr. The picture shown with the burr within the Sinus was most unusual and was the first one he ever saw of that character.

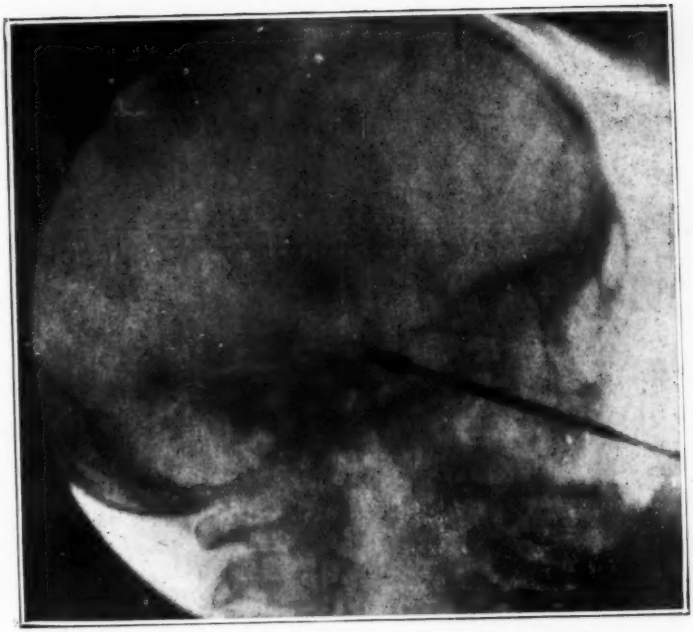
DR. MAURICE GELPI felt that Dr. Dupuy was to be congratulated for adding something new to the general store of useful surgical instruments. Most of us were too prone to accept the contributions of the pioneer and yet little inclined to make contributions of our own. It was much easier to take than to give. By his demonstration, Dr. Dupuy proved that he belonged to the laudable class of constructive contributors.

In this connection he referred to the X-ray work of Dr. Amedee Granger on the ethnoids and sphenoids which should prove of unusual interest particularly to the men specializing in nose and throat work.

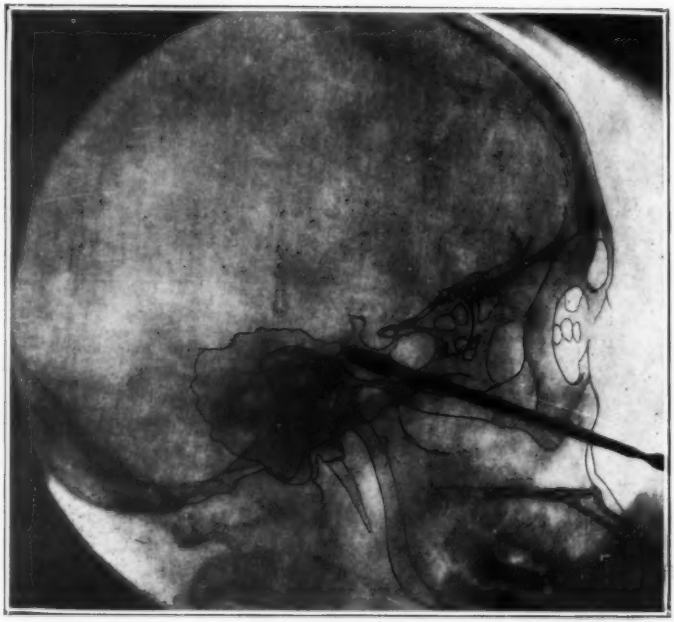
EVISCERATION OF EYE WITH TRANSPARENT CORNEA.

DR. DIMITRY presented a case which he operated upon fifteen years ago, showing that the cornea will remain transparent after the contents of the globe have been removed and a hollow glass ball implanted within. The man was thirty-eight years of age. The operation was a substitute operation to replace the enucleation of the eye. He often used colored spheres instead of the white glass ball.

The cornea remained transparent and did not slough, though all nutrition and nerve supply from within the globe had been removed during the process of eviscerating. The sclera could



Showing Dupuy burr in left Sphenoid Sinus in the living subject.



Tracing by Dr. Dimitry of X-ray picture to better outline Sinus.

be studied within and the posterior window seen, where the optic nerve had been severed. He had performed the operation a number of times.

Dr. Dimitry said that the operation had for an ideal, non-disturbance of muscles, retention of the same shape and contour, retention of the cornea, dispensing wih the prothesis, in fact accomplishing all that was desired with the exception of vision.

THE LOUISIANA STATE MEDICAL SOCIETY

Will Meet in

NEW ORLEANS ON APRIL 24, 25 AND 26

PROCEEDINGS OF THE TOURO INFIRMARY STAFF.

Monthly Meeting for March, 1923.

Dr. M. Feingold in the Chair.

OBSTRUCTION OF COMMON DUCT.

DR. RUSSEL E. STONE reported a case of common duct obstruction following cholecystectomy elsewhere.

Following this operative procedure, the patient became extremely jaundiced, developing nausea and vomiting. She began to lose weight rapidly. About two weeks after the operation she had a chill, and high temperature every 72 hours. This condition was thought to be malaria. She was treated by large doses of quinine.

The patient arrived at Touro in the ambulance extremely jaundiced and very much emaciated, unable to eat and what little she did eat, was unable to digest. Her coagulation time was 12½ minutes. Diagnosis of obstructive jaundice was made and operation was done.

The old scar was reopened. Multiple adhesions were encountered. The stomach was pulled over to the liver. The liver was rotated and after a great deal of difficulty was brought up. The peritoneum over the duct was opened and the hepatic and common ducts were isolated. The common duct was mobilized, the hepatic duct aspirated and bile found. Two guy sutures were introduced into the common duct. The duct was opened longitudinally and a stricture found apparently resulting from ligation in the previous operation. The stricture was cut and dilated with a graduated sound into the duodenum. A probe was passed up the hepatic duct which was found to be patulous. Instead of a tube, a small catheter was passed up the hepatic duct and another into the duodenum and anchored with small catgut sutures. The idea was to decompress the liver. By bringing both drains out of the abdominal wound and connecting same with connecting tube, bile could be seen as it came from the hepatic duct through the glass connecting tube into the common duct. This had the advantage over the T tube in case one wanted to feed the patient through the duodenum. The lesser peritoneal cavity was opened at the gastro-

hepatic omentum and head of pancreas exposed which was found to be enlarged, thickened and indurated, showing evidence of infective pancreatitis due to obstructive cholangitis.

The patient left the operating table in very good condition. She was put on a Murphy drip of glucose and sodium bicarbonate and hypodermoclysis. She was practically kept alive on alcohol the first week. Drainage was left in situ for 3 weeks and then removed. Discharge of bile continued for about 48 hours, then ceased. Recovery was uneventful. At the end of four weeks she had gained 17 pounds and was able to eat anything. A Jutte tube was passed after her arrival home and clear transparent bile obtained.

CONCLUSIONS.

First, since the post-operative intra-abdominal hemorrhages were the cause of death of these patients, the coagulation time of blood should be determined before the operation. If the time was lengthened beyond six minutes, attempts were made to reduce it by intravenous injection of calcium chloride plus blood transfusion.

Second, calcium chloride given intravenously reduced coagulation time of blood and combined with the bile pigments circulating in the blood stream rendering them less toxic.

Third, the lack of glucose supply in the tissue of the body as a result of toxic liver cells was overcome by suplying glucose direct to the tissues by proctoclysis and subcutaneous injection.

Fourth, large quantities of water should be given which aided in eliminating bile and which increased the fluids of the body.

Fifth, operative technique in obstructive jaundice cases should be the gentlest. Tissues should be handled carefully, cautiously, and as Mr. Moynihan said, "almost with a caress." Rough handling, steel retractors, and rough technique, caused these patients to ooze to death.

DR. GESSNER asked to what time Dr. Stone reduced the coagulation period? While he spoke in a general way of giving calcium salts intravenously, he did not understand whether he gave them in this case and if he did give them at all, how often.

DR. STONE said that 10 per cent calcium chloride was usually used. As for the coagulation period, the consensus of opinion was that anything less than six minutes was not con-

sidered operable. The reason he did not give this patient calcium was because she was so tender in the region of the gall bladder and had all the symptoms of an abscess and he intended to drain the abscess. The diagnosis was wrong so he did the hepatic drainage simply to relieve her condition. The idea of introducing drainage into the common duct was first introduced by Dr. Matas.

EXTENSIVE COMMINUTED FRACTURE OF THE SHAFT OF THE HUMERUS

DR. STONE reported the case of a patient who slipped and fell down a stairway, falling on his left arm. He suffered great pain immediately and was unable to move it. He was brought to the hospial shortly after the accident for treatment.

An oblique incision was made into the deltoid muscle to the bone of the elbow joint. The muscle was separated down to the bone. Interposed muscle was removed from the bone fragments; the fixation forceps were then introduced and the oblique fracture placed in position. A two-inch screw was then introduced through both fragments obliquely from above downward. As the screw entered the lower fragment it pulled it upward and into close apposition. The wound was washed out with ether. The muscles were sutured with chromic No. 1, fascia with chromic No. 2. The skin was closed with three silkworms and plain No. 00. Anterior and posterior plaster splints were applied with forearm in right angle flexion. Post-operative recovery was uneventful, the wound healed by primary intention. The arm was dressed frequently and given massage and contrast baths. Splints were removed on December 12 (one month post-operative). The patient was discharged from the hospital with satisfactory motion.

X-ray picture taken post-operative showed the left humerus with the screw in position in good alignment.

FRACTURED HEAD OF RADIUS.

DR. STONE also presented a case of fractured radius with incomplete flexion and extension. This resulted from an accident several weeks before the patient arrived at Touro. X-ray showed the head of the radius broken off and acting as a foreign body in the joint and limiting all the motions in the forearm. The only relief that could be given was by resecting the head of

the radius. This afforded a perfect result. The patient could extend, flex, pronate and supinate his forearm. The only weakness he had was when attempting pushing movements.

The technique in this procedure to be successful was like that of all other joint and bone operations—nothing should touch the field of operation except sterile instruments, and the wound should be closed without drainage. If this precaution was carried out, infection should be a negative quantity.

TWILIGHT SLEEP.

DR. J. W. NEWMAN presented cases delivered in "Twilight Sleep." His purpose in presenting these cases was twofold. It was difficult to realize that despite the progress that had been made in all departments of medciine that so little advance, so little attention had been paid to the relief of suffering women during childbirth.

Some twenty years ago, the first experiments on a large scale were made with Twilight Sleep. After using it on a few thousand cases it was decided that the method was not safe to the mother or the child and it was abandoned. A decade ago, this method of anesthesia first started at Frieburg, was taken up again under different conditions and today the same method that was in vogue ten years ago is still being utilized. It was difficult to realize that a method that was sanctioned, approved and utilized by so many as safe and sane should have so many different methods of application, that there should be such a diversity of opinion regarding technique by those who favor its use as an anesthetic.

Chloroform had been abandoned for years on account of its effect on the liver. Ether unfortunately could not be used during the entire duration of labor, no matter how safe we considered it. Nitrous oxide was used throughout the world as a safe anesthetic with practically no contra-indications. At the Frieburg Clinic every patient, irrespective of her physical condition was given an injection of scopolamine and one of the derivatives of opium, but not morphia. These injections of scopolamine were repeated according to the needs of the patient until profound anesthesia resulted. Tweedy of the Rotunda recommended that only three doses of scopolamine be given, and not by hypo, but by mouth. Van Hoosen of Chicago gave fixed doses at stated intervals. Again Tweedy said, give one

dose in every case. Van Hoosen gave it in every case and as much and as often as needed in fixed doses at fixed intervals. Regarding the time of its application, this diversity of opinion also prevailed. Freiburg said, "begin with the injection before two fingers dilatation of the cervix exists." Tweedy insisted that the cervix should be thinned out to the extent of three fingers before injections were begun. Van Hoosen claimed that best results were accomplished if injections were given with the first pain. With such a diversity of recommendations and of results accomplished, he deemed it advisable to experiment with the various methods and to continue using the one from which the best results could be obtained. As far as anesthesia was concerned, his results were most unsatisfactory, but there was no doubt that as far as analgesia and amnesia were concerned, the results were surprisingly beneficial.

The method he employed at present was as follows: 1/150 gr. of scopolamine (Roche) together with a 1/8 gr. of morphia was given hypodermically as soon as the patient was admitted to the hospital. The scopolamine was repeated every half hour for three doses. After that every hour and a half until labor was terminated. There was no doubt in his mind that the use of the drug must be started before the patient had gained the impression that she was going to suffer throughout the course of labor and that it was necessary to select the cases inasmuch as the patient must have sufficient intelligence to grasp the meaning of what we intend doing so that she can co-operate.

Dr. Newman concluded that analgesia and amnesia could be easily acomplished through the hypodermic injection of three doses of scopolamine at intervals of thirty minutes. There was no doubt that a patient was thereby saved a great deal of suffering. Anesthesia, however, was very difficult to obtain and could only be accomplished after many injections. Every patient irrespective of the condition of the cervix should receive at least one injection of scopolamine and morphine. No harm could come to either mother or child. It did not seem just that the class of patients who were mostly in need of such an anesthetic were the ones who did not as a rule derive the results desired.

He referred to the class of high strung nervous women, especially foreigners. He attributed a great deal of the poor re-

sults in the past to the fact that too much progress had been made before the first hypodermic had been given. As far as contra-indications were concerned, there were practically none on the part of the mother, but as to the fetus, they unquestionably existed. He saw at the Freiburg Clinic within forty-eight hours five cases where the drug had to be discontinued on account of the effect on the fetus as evidenced by the great changes in the fetal heart beat. The elimination of morphia after the first hypodermic had the effect of eliminating the so-called Blue Babies and today he seldom had to discontinue the use of the drug on account of the effect on the fetus. One of the principal arguments to be used against this method of anesthesia was the close supervision required both for the mother and the fetus. An examination of the fetal heart sounds every fifteen minutes throughout the entire course of labor was absolutely essential.

He hoped that his remarks would tend to overcome the prejudice that had existed many years against the employment of Twilight Sleep, and that though not thoroughly convinced of the safety and sanity of its use, that it be given a fair trial, if not for the purpose of utilizing it in the future, then at least for the collection of reliable data for its condemnation.

DR. LANDRY stated that he had never used morphine-scopolamine in obstetrics but had used it considerably in surgery. He took exception to a statement of Dr. Newman, "that there was absolutely no danger in the drug and that every one should have one dose of morphine-scopolamine." A few years ago, he had a simple cystic goitre scheduled for operation but unfortunately dislocated his elbow the afternoon before the operation. He asked Dr. Maes to take the case for him. The operation was done under local anesthesia and the patient was given a dose of morphine ¼ and scopolamine 1/150; she went to sleep on the table during the operation and continued to sleep all that afternoon and the greater part of the night. The patient made a very good recovery, but was the cause of considerable anxiety to the surgeon and staff.

NEWS AND COMMENT.

LOUISIANA STATE MEDICAL SOCIETY—POSTPONEMENT OF ANNUAL MEETING. THE EXECUTIVE COMMITTEE OF THE LOUISIANA STATE MEDICAL SOCIETY HAVE FOUND IT NECESSARY TO POSTPONE THE ANNUAL MEETING OF THE LOUISIANA STATE MEDICAL SOCIETY TO APRIL 24, 25 AND 26. THE HOUSE OF DELEGATES IS TO CONVENE ON APRIL 23.

BULLETIN OF THE LOUISIANA STATE MEDICAL SOCIETY. We wish especially to call your attention to the action of the Executive Committee in postponing the meeting dates of the Louisiana State Medical Society to April 24, 25 and 26, 1923. This was deemed advisable on account of the Confederate Veterans' Reunion, which will take place in New Orleans the week of April 9th. We have tried in every way possible to reach all members of the State Society and those interested in the Scientific Program with this information.

The House of Delegates will convene on Monday morning, April 23rd, 1923, at 10 o'clock, in the Hutchinson Memorial Building, 1551 Canal Street. All delegates are requested to arrive at the above locality previous to the opening time in order that they may register.

Our president, Dr. Paul J. Gelpi, has asked to have it announced that all meetings of the House of Delegates, also the meetings of the Scientific Session of the Convention will be called to order on time as specified in the program. Your cooperation in this regard is earnestly requested so that the Sessions of the House and the Scientific Session may not be delayed and will be completed as planned.

As you will observe, we have a very large program and it will be only by strict punctuality and adherence to time limits of papers and discussions that we will be able to complete same.

The meeting of the Railway Surgeons of Louisiana has been called for Monday night, April 23rd, at 8 p. m., in the Hutchinson Memorial Building, 1551 Canal Street. All Railway Surgeons of Louisiana are earnestly requested to attend this meeting as a very unusual program for their entertainment has been arranged as follows:

"Injuries of the Hand," by Dr. H. W. Kostmayer, New Orleans, La.

"Mobilization of Joint in Treatment of Fractures of the Lower Extremities," by Dr. E. D. Martin, Dr. A. C. King and Dr. A. J. Babin, all of New Orleans, La.

PLAN OF ENTERTAINMENT.

Monday, April 23, 1923.

Luncheon, 12:30 p. m.

Tendered by St. Luke's Private Sanitarium, Dr. B. F. Gallant, Medical Director. (Opposite Texas & Pacific Passenger Depot, 1231 Annunciation St.)

Tuesday, April 24, 1923.

Luncheon, 12:30 p. m.

Tendered by Loyola Post-Graduate School of Medicine. (Corner Villere and Tulane Avenue, opposite Charity Hospital.)

A Stag Bamboula at 7 p. m.

Theatre party for the Lady Members and Guests at 8 p. m.

Wednesday, April 25, 1923.

Luncheon, 12:30 p. m.

Tendered by the Eye, Ear, Nose & Throat Hospital (Corner Tulane Avenue and Elks Place).

Luncheon for the Lady Members and Guests at 1 p. m. (at the Patio Royal, 417 Royal St.).

Thursday, April 26, 1923.

Luncheon, 12:30 p. m.

Tendered by the Tulane College of Medicine (at the Hutchinson Memorial, 1551 Canal Street).

Boat ride from 2 to 5 p. m. for the visiting and resident lady guests and the lady members of the committee.

Hotels.

Reservation can be made in advance by writing the following hotels: Grunewald, Mr. Geo. Weber, manager; St. Charles, Mr. P. O'Shaughnessy, assistant manager; DeSoto Hotel, Mr. Vic Lebeau, manager; Monteleone, Mr. F. Kenney, manager; Planters, Mr. H. A. Michel, manager; Lafayette, Mr. Lyle Aschaffenburg, manager.

Rooms are available in the Stag Headquarters of the New Orleans Chess, Checkers and Whist Club.

Anyone desiring reservations should communicate with the secretary-treasurer of the Louisiana State Medical Society, Dr. P. T. Talbot, 1551 Canal street.

HEADQUARTERS.

Tulane Medical School, 1551 Canal street, Hutchinson Memorial.

(Walking distance from any of the hotels.)

REGISTRATION.

Enter the basement of the building and register before going to the Meeting Hall, getting at the same time invitations to the functions arranged for your entertainment.

Ladies accompanying members will be required to register and wear the official badge of the meeting, in order to participate in entertainment arranged for them by the committee.

MAIL.

All mail addressed in care of the Convention will be taken care of at the registration office and a daily notice of letters received will be posted.

INFORMATION.

Any matter that you are not posted on can be explained at the registration office.

CLUBS.

The following clubs have extended the courtesies of their home to all members of the association, wearing the offiicial badge and no admit card will be necessary:

The Elks' Club, Elk Place, near Canal.

Chess, Checkers and Whist Club, Bourbon, near Canal. (The old Cosmopolitan Hotel.)

Young Men's Gymnastic Club, No. 224 N. Rampart street. (One block and a half from Canal.)

Dr. Amedee Granger, Chairman, Arrangement Committee.
New Orleans, La.

Dr. T. A. Maxwell, Chairman, Finance Committee.
New Orleans, La.

Dr. M. J. Lyons, Chairman, Booths Committee.
New Orleans, La.
Dr. O. C. Cassegrain, Chairman, Signs and Decorations Com.
New Orleans, La.
Dr. Lucien A. LeDoux, Chairman, Advertisement Committee.
New Orleans, La.
Dr. Maud Loeber, Chairman, Ladies' Entertainment Committee
New Orleans, La.
Dr. A. E. Fossier, Chairman, Entertainment Committee.
New Orleans, La.
Dr. L. H. Landry, Chairman, Badges Committee.
New Orleans, La.
Dr. W. A. Reed, Chairman, Scientific Exhibit Committee.
New Orleans, La.
Dr. M. W. Swords, Chairman, Publicity Committee.
New Orleans, La.

THE NEW ORLEANS CONFERENCE OF SOCIAL WORKERS have been able to secure Miss Antoinette Cannon of international repute to deliver a course of lectures on medical social service early in April for two weeks. The course will be an afternoon and evening one. Miss Cannon comes to us well equipped to handle the topic, having been for many years conected with the Social Service Department of the Mass General Hospital, Boston, and is now superintendent of field work and hospital special work in New York. All those interested are invited to communicate with Miss Mary Railey, Child Welfare Bureau, for further data and information.

THE LOUISIANA STATE CONFERENCE ON SOCIAL BETTERMENT meets in New Orleans on April 8, 9 and 10, under the auspices of the New Orleans Conference of Social Workers.

Among the many topics to be discussed will be: Mental defectives, delinquents, medical, family, church and women's clubs, social work, as well as child welfare, mental hygiene and community organization. The medical fraternity and their friends are extended an invitation through this medium to attend these lectures. The meetings will be held at the Athenaeum, excepting a community meeting which will be held on the campus of Tulane University, on Sunday, April 8, at 4 p. m., when speakers

will address the conference and their friends. Among the many visitors will be Owen Lovejoy of New York City, late president of the National Conference of Social Workers. Those in charge of the conference are:

Dr. Maud Loeber, president; Mrs. Margaret D. Dickson and Miss Willes Sullivant, secretaries; Drs. John Spelman and J. W. Newman, chairmen; Dr. David Fishman, ways and means; Prof. S. P. Wyckoff, of Tulane, program; Mrs. A. A. Hartman, luncheon and entertaining; Mr. Charles H. Patterson, housing and halls; Dr. Walter J. Otis, publicity and press; Rev. Stephen Carra, speakers.

ANNOUNCEMENT is made by Dr. I. I. Lemann, that in the future his practice will be limited to hospital work and office consultations.

THE MISSISSIPPI VALLEY MEDICAL SOCIETY, composed of the parishes of St. John, St. Charles and St. James, convened in its regular quarterly session at 11 a. m., March 8, at the Reserve Community Club, Reserve. This proved to be the record meeting of the society. This success was manifested in a measure by the very gratifying increase in the attendance of our old members, several of whom had brought with them candidates for membership. But there was also another and more potent reason and its realization was soon to be pleasantly experienced by the arrival of the delegation from New Orleans. This was composed of some of the officers of the Louisiana State Medical Society and their associates, including representatives of special departments of the Louisiana State Board of Health, all of whom had availed themselves of this opportunity to join forces in honoring us with an official visitation, the two bodies co-operating and participating in the scientific session of the day's program.

From the Louisiana State Medical Society: Dr. Paul J. Gelpi, president; Dr. Geo. S. Bel, councillor of our Second District; Dr. Hamilton P. Jones and Dr. P. T. Talbot, secretary-treasurer.

From the Louisiana State Board of Health: Dr. J. Geo. Dempsey, State Registrar, Bureau of Vital Statistics, and Dr. Leonard C. Scott, in charge of the venereal disease department of the Louisiana State Board of Health.

Other visiting guests from New Orleans: Dr. Lucien A. LeDoux, Dr. W. H. Block, Dr. W. M. Johnson and Dr. A. E. Fossier.

Mississippi Valley Medical Society: Dr. L. T. Donaldson, Sr., president; Dr. J. P. Tenney, vice-president; Dr. L. Cheves Tebo, secretary-treasurer; Dr. E. P. Feucht, Dr. Wm. F. Guillotte, Dr. J. S. Parker, Dr. L. A. Gaudin, president St. James Parish Medical Society; Dr. B. A. Colomb and Dr. Lionel O. Waguespack.

Luncheon was served after the scientific proceedings.

DR. LEWIS H. WEBB, surgeon U. S. P. H. S. (R), with the rank of major, and late relief officer of the Veterans' Bureau District No. 6, has been promoted to the grade of district medical officer vice Dr. William C. Gibson, surgeon U. S. P. H. S. (R), with the rank of major. Dr. Gibson will be greatly missed by the entire personnel attached to the bureau, to whom he endeared himself while here. He goes to Washington to enter the same duties to which he was assigned before coming to New Orleans. His connection with the ex-service men's activities ably fits him for the duties which are ahead of him.

FROM U. S. BUREAU OF MINES, Washington, D. C., comes warning that improper combustion of natural gas in heating appliances in common use may liberate carbon monoxide, an insidious and deadly gas, as the result of studies just completed at its Pittsburg, Pa., experiment station. These tests followed announcements in Pittsburg, Baltimore and various other cities of many deaths due to this cause.

THE "GIFT HOUSE," a new dormitory of the Alexander Milne Home School for Girls, devoted to the care, training and happiness of those whose minds have not developed normally, was dedicated Saturday afternoon, February 24th, at 2:30 P. M.

THE SHREVEPORT MEDICAL SOCIETY, Dr. Robt. T. Tucos, secretary, met at the Charity Hospital on February 6th, 1923, Dr. Pirkle, presiding. Twenty-six members were present.

Drs. Sanderson, Ragan, Barrow and Smith were elected delegates to the Louisiana State Medical Society.

Clinical cases were presented and the following papers were presented: "The Gastro-Intestinal Form of La Grippe," by Dr. Picard, and "Lamblia Infections," by Dr. Knighton.

THE UNITED STATES CIVIL SERVICE COMMISSION announces the following open competitive examinations: Assistant in child hygiene, specialist in child hygiene, specialist in child hygiene (psychiatry). Attention is also called to the opportunities offered to enter Government service at the new United States Veterans' Bureau Hospital for colored veterans shortly to be opened at Tuskegee, Ala. Information concerning the former should be addressed to the United States Civil Service Commission, Washington, D. C., and the latter to the secretary, Fifth U. S. Civil Service District, postoffice, Atlanta, Ga.

U. S. VETERANS' BUREAU INSTRUCTION IN PULMONARY TUBERCULOSIS.—By authority of the director of the U. S. Veterans' Bureau, announcement is made that those who have completed the preliminary course in pulmonary tuberculosis given in twenty Veterans' Bureau hospitals, are eligible to attend the post-graduate course now being, and to be repeated at intervals, at Veterans' Hospital No. 41, New Haven, Conn., and at Fitzsimons General Hospital, Denver Colorado. These latter schools began March 1 and 5, respectively. While the courses at New Haven and Fitzsimons are intended for personnel now in the service of the Bureau, it is hoped that later courses will be open to those who wish to take up this specialty and enter the service of the Bureau.

UNITED STATES PUBLIC HEALTH SERVICE states that vaccination is 2,000 years old. "Vaccination is an outgrowth of man's effort to protect himself from pestilence by using nature's methods of defense," says Dr. G. W. McCoy, director of the hygienic laboratory of the United States Public Health Service. "Primitive man noticed that recovery from a first attack by most diseases gave immunity against other attacks; and some 2,000 years ago he began to inoculate his fellows with smallpox when conditions seemed propitious instead of waiting for nature to do it at some time when conditions might be very unpropitious.

"Inoculations against smallpox were made in India and in China as early as 300 B. C. Later, when the disease reached

Europe, inoculation went with it, supplemented by a new method called 'selling smallpox'—exposing a well person to contact with one ill with the disease so that if he survived he would be proof against it.

"Inoculation differs somewhat from vaccination as devised by Jenner, but the principal is the same. Moreover, long before Jenner's day it was known that an attack of cowpox gave immunity from smallpox; and records show that men who had recovered from cowpox had themselves inoculated with smallpox to make the proof conclusive. Jenner, however, as he himself says, 'placed vaccination on a rock' where he knew it would be immovable."

CARBON TETRACHLORID IN THE TREATMENT OF HOOKWORM DISEASE. "About 50,000 persons have been treated with carbon tetrachlorid by S. M. Lambert, Siwa, Fiji (*Journal A. M. A.*, Feb. 24, 1923), and his associates in Fiji. Three deaths from poisoning occurred among the last 8,000 cases. The poisoning was caused by some impurity of unknown nature in the drug. The experience with the heavy *Ascaris* infection in Navua caused Lambert to modify the treatment for young children by adding to the carbon tetrachlorid a vermifuge more effective for *Ascaris*. Oil of chenopodium is considered such a drug. It was added in the proportion of one part of chenopodium to eleven parts of carbon tetrachlorid. The dose of the mixture remained at 3 minims (0.2 c.c.) for each year of age. This meant 2¾ minims of tetrachlorid and ¼ minim of chenopodium for each year. Several hundred persons, many of whom have had fairly severe *Ascaris* infections, have been treated. The worms have all been removed dead. The mixture is not disagreeable to take, and children have not objected to it. The oil is held in a perfect solution in the tretrachlorid."

ACTION OF STRONGER SOLUTIONS OF MERCUROCHROME IN EARLY GONORRHEAL INFECTIONS. "Ernest Rupel, Indianapolis (*Journal A. M. A.*, Feb. 24, 1923), has used a 5 per cent mercurochrome-220 soluble solution with good results. A disappearance of purulent discharge was effected by the third day in 75 per cent of these cases. In ten, or 21.7 per cent, of the cases, posterior symptoms developed, the severity of which did not differ from the usual incidences of such.

Approximately 70 per cent of the patients reached an apparent cure in one week, and in ten days 75 per cent were cured. Freedom from symptoms, both objective and subjective, constituted a "cure." Fully one-half of the patients have been dismissed more than a year. There have been no recurrences."

SIXTH DISTRICT. The second annual spring meeting of the Sixth District Medical Society was held in Jackson, March 14th. Meeting at the East Louisiana State Hospital as guests of Dr. E. E. Evans and Mr. W. A. West, who spared no efforts in making the members of the society most welcome, extending every courtesy and turned the freedom of the institution over to them.

The meeting was called to order by the president, Dr. J. W. Lea of Jackson. There were 49 members present, a very good attendance considering the prevalence of so much sickness at this particular time. After the invocation by Rev. B. D. Watson of Jackson, Dr. Evans introduced the honorary member of the society, Mr. West, who welcomed the members of the society and turned over the keys of the institution, stating at the same time that the pass-word to any department of the hospital was, Open The Door, to be answered by the attendant with "Welcome."

The following officers were elected for the ensuing year: Drs. C. A. Weiss of Baton Rouge, president, and R. P. Jones, also of Baton Rouge, secretary. The next meeting place to be selected at a future date. Moving picures showing two intra-abdominal operations, an operation for repair of complete perineal laceration, the treatment of wounds with Dakin's solution were shown and proved very interesting to the members. Next followed the reading and discussion of scientific papers as follows: Studies of Two Micro-Organisms. Resident in Dental Socket, R. R. Bailey, D.D.S., Jackson resident dentist. Has the X-Ray a Definite Place in a Hospital for Mental and Nervous Diseases, Lester J. Williams, M.D., consulting roentgenologist, Baton Rouge. Medical Ethics, Dr. Tom Spec Jones, consulting surgeon, Baton Rouge.

A psychiatric clinic by the resident assistant physicians of the institution, in which the members of the society were shown types of various forms of insanity, proved very enlightening

to the members present. Cases of senile dementia were shown, diagnosis and prognosis given by Dr. L. H. Scott. Cases of general paralysis of the insane by H. K. Wright, M.D., resident assistant physician, Jackson. Dementia praecox by C. S. Miller, M.D., resident assistant physician, Jackson. Maniac depressive psychosis, J. H. Parker, M.D., resident assistant physician, Jackson.

After the scientific portion of the program, the society was tendered a banquet by Dr. E. E. Evans and Mr. West, and a most sumptuous and delicious repast was served in one of the dining rooms of the institution.

Following the banquet, another moving picture entitled Oral Hygiene and Care of the Teeth, was shown, to which all the school children of Jackson were invited.

The meeting proved a success from every angle, scientific, educational and social, in a large measure due to the untiring efforts of Drs. Lea, Evans and Mr. West. While the Sixth District Society is yet in its infancy it shows strong evidence of growing into a powerful factor for the dissemination of medical knowledge and medical unity throughout our district.

PROVISIONAL MORTALITY FIGURES, 1922. The Department of Commerce, Washington, D. C., announces that provisional figures compiled by the Bureau of the Census for the first nine months of 1922 indicate slightly higher death rates than for the corresponding nine months of 1921. For the states compared the death rate for the nine months was 11.7 in 1922 against 11.6 for the first nine months of 1921. The highest mortality rate for the nine months is shown for Maine (14.3) and the lowest for Idaho (7.8).

AT THE CHARITY HOSPITAL, NEW ORLEANS. The Charity Hospital is filled to capacity. In fact, the hospital is overcrowded and the facilities are not adequate for the present needs, nor will they meet the ever-increasing needs of the future, as statistics show that the number of patients is increasing daily.

There is imperative need for more wards. In addition to the above the nurses' home is not large enough and it is necessary that an addition be built. The interns' quarters are really nothing more than temporary and cannot accommodate the

number of interns in service in the hospital, it being necessary to house some of them on the outside.

Having exhausted every other means of procuring funds, and these improvements being absolutely necessary, the board of administrators intends putting on a drive. It is contemplated to ask every person in the state for one dollar, and as the population is 1,800,000 this would bring the total to that amount. Because many will be unable to contribute their dollar and to make up this deficiency, it will be asked that others give as much money as they can. The drive will begin March 15th and end May 12th, Hospital Day.

PROVISIONAL BIRTH FIGURES, 1922. The Department of Commerce, Washington, D. C., announces that provisional birth figures compiled by the Bureau of the Census for the first nine months of 1922 indicate lower birth rates than for the corresponding nine months of 1921. For the states compared the birth rate for the first nine months was 22.8 in 1922 against 25 in 1921. The highest birth rate for the nine months is shown for North Carolina (30), and the lowest for Washington (18.3).

AT TULANE UNIVERSITY: Dr. C. C. Bass, the dean of the Medical School of Tulane University, attended the meeting of the Association of American Medical Colleges at Ann Arbor, Michigan, on March 2nd and 3rd. He also attended meeting of the Congress on Medical Education, Liscensure, Public Health and Hospitals of the American Medical Association, held in Chicago, March 5, 6 and 7.

COMMUNICABLE DISEASES AND TRAVEL. Uniform provisions governing the travel of persons suffering from contagious diseases are now in force over a large part of the United States, says the U. S. Public Health Service, in a bulletin just issued.

The code looks to either the prevention of travel by infected persons or to the taking of measures to render such travel harmless; to the adoption of such general provisions as may render unlikely the transfer of infection to travelers by towels, drinking cups, and other objects of general use; and to the control of food and water on trains so as to protect them from contamination by the secretions of infected persons. Prevention of all travel by infected persons is so difficult as to be impracticable.

ANNUAL MEETING OF THE EYESIGHT CONSERVATION COUNCIL. The annual meeting and election of the Eyesight Conservation Council of America was held in New York on Tuesday, February 6th, 1923, at the Pennsylvania Hotel. President Wallace reviewed the activities of the council during the past year. He referred to the increased interest and the gratifying response to the work, and of the encouraging outlook for 1923.

THE NEW YORK ACADEMY OF MEDICINE is seeking funds to purchase the site for a new building.

THE NATIONAL BOARD OF MEDICAL EXAMINERS announces examinations as follows: Part 1, June 25, 26, 27, 1923; Part 2, June 28, 29, 1923; Part 1, September 24, 25, 26, 1923; Part 2, September 27, 28, 1923. Applications must be made before May 15. Further information may be obtained from the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

EIGHTH CONGRESSIONAL DISTRICT. Dr. C. M. Harris recently moved from Poland to Cheneyville.

Dr. Frank Luckett moved from Cheneyville to Alexandria last month.

Dr. M. H. Foster and family, of Alexandria, motored to Opelousas March 17th to spend the week-end with Dr. Paul Foster.

At the last meeting of the Rapides Parish Medical Society our representatives to the State Meeting were directed to take up the matter of suitable representation in the State Legislature. For the protection of the public, and for the advancement of medical science generally, it is absolutely necessary that some of our State legislators be selected from the medical profession, or at least from lay candidates favorably committed to matters protecting the general health, and scientific advancement. To this end, all members of the house of delegates are urged to co-operate, both in the house deliberations, and on returning to their home districts.

This office is very anxious to receive any communication from the parishes of the Eighth District, and to get any item of medical news of interest. The winter is now past, the big state meeting will soon be over, and we look forward to the great

wide open season of the year with genuine delight for the promise of recreation and relaxation which it is about to afford us. While the doctor is a scientist, and devoted first, last and all of the time to the serious purpose of easing pain, and prolonging life, and making as pleasant as possible the very hardest places of human experience, he is yet mortal, human and alive. He cannot continually ignoree the affairs of less pith and moment without a definite loss of physical tone, mental poise and those essential elements which enter into the construction of a well balanced personality.

It is the sincere desire of the collaborator to cover the entire district, get acquainted with every doctor in it, and to make regular reports that will be interesting to all. It is therefore announced and promised that if any Parish society in the district will invite him to a medical meeting, or a fishing trip (either one but preferably both), picnic barbecue, or any other excuse that will serve as an actual basis for meeting with the local physicians the invitation will be accepted, and personal business suspended ad interim.

Meet you in New Orleans April 24, 25, 26. M. H. Foster, M. D., Collaborating Editor, 8th Cong. District.

THE LOUISIANA STATE MEDICAL SOCIETY

Will Meet in

NEW ORLEANS ON APRIL 24, 25 AND 26

BOOK REVIEWS AND NOTICES.

All new publications sent to the JOURNAL will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the JOURNAL to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.

Place of Version in Obstetrics, by Irving W. Potter, M.D. C. V. Mosby Co., 1922. St. Louis.

Dr. Potter's method of performing version has appeared in many medical journals, but now makes its first appearance in book form. Of convenient size and unusually well illustrated, it conveys very readily to the reader the technique which he uses in performing this operation. Approximately half of this book is devoted to a review of the literature regarding the development of obstetrics, and particularly the origin and development of version to the present day. Each step in the performance of this operation is described and illustrated. His conclusions are a resume of the results he has obtained since routinely resorting to this method of delivery. This book will prove a valuable addition to our obstetrical literature, and should be read and studied by those who are interested in this branch of medicine. L. A. L.

Handbook of Organization and Method in Hospital Social Service, by Margaret S. Brogden. Norman Remington Co., 1922. Baltimore, Md.

As though to focus the reader's attention upon the need of medical social service, on the opening page the author quotes a Meissonier-like epic picture which visualizes the mental attitude of a discharged patient—the home to which he must return, its hardships, its inadequate provisions, its noisy neighbors and other problems—conditions too frequently confronted by the patient and social worker. Miss Brogden's extended hospital experience and her splendid work as supervisor of the social service department of Johns Hopkins Hospital qualifies her for the compiling of the information contained in this compact little volume. The organization of the social service department of the Johns Hopkins Hospital is outlined, giving its functions in aiding in medical treatment and the prevention of disease through investigating and reporting to the physicians, and adjustment of problems, both medical and environmental that hinder and retard the process of recovery. She reprints the report of the committee on the functions of hospital social service as presented by the American Association of Hospital Social Workers. These functions are elaborated upon under the headings of case work, research and education. In a corollary she cites what must sometimes be done as temporary functions in order to organize the work but stresses the primary function of the hospital social work in case work. The best contribution of such work both to the hospital and the community is the performance of these functions. Her outline of case analysis and the details concerning the records and the general technique of the department offers information with a conciseness which makes the book both valuable and suggestive to executives, experienced workers, students or anyone interested in medical social service. L. B.

Ophthalmoscopy, Retinoscopy and Refraction, by W. A. Fisher, M.D., F.A.C.S. Pub. by W. A. Fisher, Chir., 1922.

A rather clear and simple description of ophthalmoscopy, retinoscopy and fitting of glasses, intended for the use of medical practitioners and students. The author believes that the fitting of glasses belongs to the general practitioner. Ophthalmoscopy is to be acquired on the author's schematic eye for which good colored drawings are supplied in the text and in the appendix. For the different fundus conditions diagrams illustrate in cross sections the gross macroscopic appearance; unfortunately, the diagramatic sections do not always correspond, in direction, to the direction of the fundus changes. Ophthalmoscopy is to be attempted on the patient only after mastery of it on the schematic eye. The rules of measuring the refraction are always emphasized. Field examination, systematic examination of the eye and glaucoma have special chapters. Slight theoretical discussion is introduced only in discussing lenses and refraction proper. Minute descriptions of subjective methods of prescribing glasses and of retinoscopy are given, and the value of proper fitting of the frames is not forgotten. M. F.

A Treatise on Cataract, by Donald T. Atkinson, M.D. Vail-Ballou Co., New York, 1921.

The book aims to give a resume on the subject of cataract, of the methods of operation and the after treatment. The very laudable view is expressed that the general practitioner should be able to diagnosticate iritis, glaucoma and cataract. From the author's description one would expect the myopia of beginning cataract, the "second sight," to be very frequent. The necessity of examining the eyeground while the lens is still clear is correctly emphasized as a later aid to prognosis. M. F.

Radiant Energy and the Ophthalmic Lens, by Frederick Booth. P. Blakiston's Son & Co., Phidalephia, 1921.

A collection of data on radiant energy—optic, thermic, electric, acoustic—form the introduction for the main purpose of the book: to teach the proper fitting of glasses by the various methods for the relief of the discomforts caused by eyestrain. Included in the book are methods of field examination and its close is made up of a chapter containing a number of mathematical rules and data, of value in applied and practical optics. The author spells Hom-atropin. M. F.

Diseases of the Ear, Nose and Throat, by Wendell Christopher Phillips, M.D. F. A. Davis Co., Philadelphia, 1922.

A sixth edition of this Americanized text-book testifies to the generous support accorded it. New matter has been introduced on such topics as allergy, diphtheria, pollen therapy. The Schick test, the administration of toxin-antitoxin, are given ample space. Dr. Clyde Lynch has collaborated in presenting the subject of suspension laryngoscopy. Chevalier Jackson, the master-bronchoscopist, assisted in the revision of peroral endoscopy. As this volume represents American ideals in oto-laryngology why is no mention made of the Beck in the removal of tonsils? With its many variations this method is being applied with marked success by many laryngologists. It deserves ample consideration in a text-book of such supreme excellence and one so avowedly Americanized. H. D.

Cancer and Its Non-Surgical Treatment, by L. Duncan Bulkley, A.M., M.D. New York, Wm. Wood & Co., 1921.

This is a complete review of the subject of cancer from a medical standpoint, and of its non-surgical treatment. The basis of the author's contention is principally founded on the unproven theory

that cancer is a systemic condition produced by errors of metabolism and cell life. He presents statistics and therapeutic results to sustain his contentions. The book, therefore, offers a nice study for one who will not become negligent in our basic and accepted knowledge of cancer. P. T. T.

Urinary Analysis and Diagnosis, by Louis Heitzmann, M.D., 4th Edition, revised and enlarged. New York, William Wood & Co., 1921.

No more flattering tribute can be paid this valuable work by Dr. Heitzmann than to state that it has just appeared in its fourth edition. Both the microscopical as well as the chemical side of examination of the urine has been ably dealt with. Entire chapters are devoted to organic constituents, inorganic, proteins, carbohydrates, acids and salts, blood and pus, epithelia, mucus and connective tissue, casts, micro-organisms, animal parasites, etc. The author goes minutely into the study of the urine as relates to inflammations of the kidney, the bladder, diseases of the sex organs; and tests of functional efficiency of the kidneys are extensively dealt with. No doubt the profession generally will welcome this new volume of an already popular treatise. It should be placed among the books that are of unquestionable value to the laboratory worker and the clinician.
H. W. E. W.

PUBLICATIONS RECEIVED.

J. B. Lippincott Company, Philadelphia and London: Essentials of Surgery, by Archibald L. McDonald, M.D. Physics and Chemistry for Nurses, by A. R. Bliss, Jr., Ph.G., Ph.Ch., A.M., Phm.D., M.D., and A. A. Olive, A.B., A.M., Ph.Ch., Phm.D. How We Resist Disease, by Jean Broadhurst, Ph.D.

C. V Mosby Company, St. Louis: Clinical Laboratory Methods, by Russell Landram Haden, M.A., M.D. Impotency, Sterility and Artificial Impregnation, by Frank P. Davis, M.D.

P. Blakiston's Son & Company, Philadelphia: Anatomy and Physiology, by Elizabeth R. Bundy, M.D.

Paul B. Hoeber, New York: Multiple Sclerosis (Disseminated Sclerosis), Vol. 2, 1921, Association for Research in Nervous and Mental Diseases.

Washington Government Printing Office, Washington, D. C.: United States Naval Bulletin, Vol. 7, No. 6, December, 1922; Vol. 8, Nos. 1 and 2, January and February, 1923. Public Health Bulletin, Nos. 127, 128 and 129. Public Health Reports, Vol. 38, Nos. 5, 6, 7, 8, 9.

Miscellaneous: Optical Methods, Vol. 1, Adam Higler; Thirty-first and Thirty-second Annual Reports of the Eye, Ear, Nose and Throat Hospital, 1920 and 1921.

REPRINTS.

Arte y Ciencia (Segunda Edición), by Dr. Luis C. Maglioni; Public Health Reports, No. 719.

STATISTICAL DATA FOR THE MONTH OF FEBRUARY, OBTAINED FROM THE RECORDS OF CITY BOARD OF HEALTH.

BIRTHS.

February, 1923—	White	Colored
Male	285	101
Female	265	124
Totals	550	225
By Physicians		405
By Midwives		370
Grand Total		775
Stillbirths		35

DEATHS.

	1921			1922	
	White	Colored		White	Colored
Male	184	124	Male	204	111
Female	150	114	Female	176	142
Totals	334	238	Totals	380	253
Under 1 year	69		Under 1 year	98	

February, 1923—	Cases		Deaths	
	White	Colored	White	Colored
Diphtheria			1	0
Typhoid			2	0
Malaria			3	0
Scarlet Fever			0	0
Whooping Cough			4	0
Influenza			43	15
Measles			0	0
Cs. Meningitis			1	0
Tuberculosis			39	27

DEATHS.

February, 1923—	White	Colored
Cancer	33	7
Apoplexy	31	11
Endocarditis and Myocarditis	3	4
Angina Pectoris	8	2
Other Circulatory Diseases	79	44
Broncho-pneumonia	18	23
Lobar Pneumonia	20	24
Other Respiratory Diseases	7	1
Diarrhoea and Enteritis	1	7
Appendicitis	3	3
Other Digestive Diseases	9	5
Acute Nephritis	7	8
Chronic Nephritis	21	7
All Other Genito-Urinary Diseases	8	2
Peurperal State	8	5
Malformations	2	3
External Causes	26	23

DEATH RATE PER 1,000 PER ANNUM FOR THE MONTH.

February, 1923—		Non-residents Excluded:
Colored	27.17	24.00
White	17.59	15.66
Total	20.18	17.91

Deaths from premature births, violence, etc., are not excluded.